PANASONIC PV-6000

MODEL

SERVICE MANUAL + PV-1530

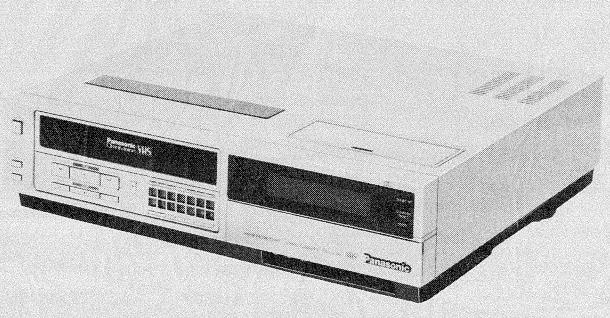
ORDER NO. VRD-8404-569
B3

Service Manual

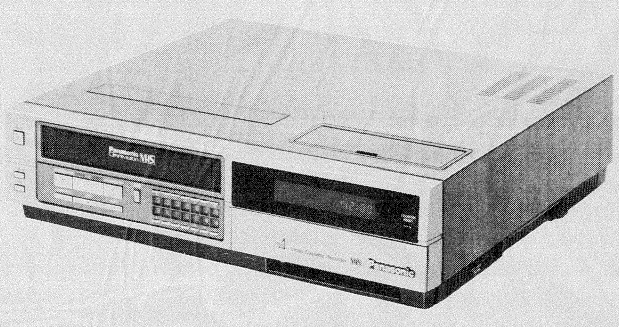
Video Cassette Recorder

Panasonic Omnivision VHS

PV-1530
PV-1525



PV-1530



PV-1525

Vol. 1	Vol. 2	Vol. 3	Vol. 4	Vol. 5
Summary	*Mechanical Adjustment Procedures* *Electrical Adjustment Procedures*	*Block Diagrams*	*Schematic Diagrams* *Printed Circuit Board Diagrams*	*Exploded Views* *Replacement Parts List*

VHS

Panasonic®

Matsushita Engineering & Service Company
Division of Matsushita Electric
Corporation of America
50 Meadowland Parkway, Secaucus,
New Jersey 07094

Panasonic Hawaii Inc.
91-238 Kauhi St. Ewa Beach
P.O. Box 774
Honolulu, Hawaii 96808-0774

Matsushita Electric
of Canada Limited
5770 Ambler Drive, Mississauga,
Ontario, L4W 2T3

Panasonic Sales Company,
Division of Matsushita Electric
of Puerto Rico, Inc.
Ave, 65 De Infanteria, KM 9.7
Victoria Industrial Park
Carolina, Puerto Rico 00630

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Service Manual

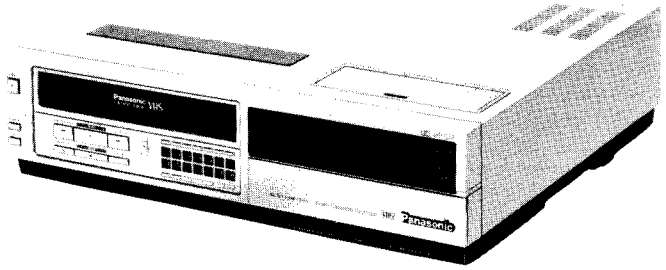
Video Cassette Recorder

Vol. 1

Panasonic Omnivision VHS

Summary

PV-1530
PV-1525



SPECIFICATIONS

Power Source:	120 V AC ± 10%, 60 Hz ± 0.5%
Power Consumption:	Approx. 22 watts
Television System:	EIA Standard (525 lines, 60 fields) NTSC color signal
Video Recording System:	4 rotary heads, helical scanning system Luminance: FM azimuth recording Color signal: Converted subcarrier phase shift recording
Audio Track:	2 track (PV-1525: 1 track)
Tape Format:	Tape width 1/2″ (12.7 mm), high density tape
Tape Speed:	SP mode: 1-5/16 i.p.s. (33.35 mm/s) LP mode: 21/32 i.p.s. (16.67 mm/s) SLP mode: 7/16 i.p.s. (11.12 mm/s)
Record/Playback Time:	8 HRS. with 160 min. type tape used in SLP mode
FF/REW Time:	Less than 6 min. with 120 min. type tape
Heads:	Video: 4 rotary heads Audio/Control: 2 stationary head (PV-1525: 1 stationary head) Erase: 1 full track erase 1 audio track erase
Input Level:	Video: VIDEO IN Jack (RCA type) 1.0 Vp-p, 75Ω unbalanced Audio: AUDIO IN Jack (RCA type) (Right, Left) −20 dB, 50 kΩ unbalanced MIC IN jack (M6) (Right, Left) −70 dB, 4 kΩ unbalanced PV-1525: MIC IN jack (M3) −70 dB, 4 kΩ unbalanced TV Tuners: VHF Input: VHF Ch2-Ch13, cable channels "A"~"W", "A-2", "A-1" 75Ω unbalanced UHF Input: Ch14-Ch83, 300Ω balanced
Output Level:	Video: VIDEO OUT Jack (RCA type) 1.0 Vp-p, 75Ω unbalanced Audio: AUDIO OUT Jack (RCA type) (Right, Left) −9 dB, 1 kΩ unbalanced PV-1525: −6 dB, 600Ω unbalanced RF Modulated: Ch3/Ch4 switchable, 72 dBμ, (Open Voltage) 75Ω unbalanced
Video Horizontal Resolution:	Color: more than 230 lines B/W: more than 230 lines
Audio Frequency Response: (10 dB down)	SP mode: 100 Hz ~ 8 kHz LP mode: 100 Hz ~ 6 kHz SLP mode: 150 Hz ~ 5 kHz
Signal-to-Noise Ratio:	Video: SP mode: better than 41 dB LP mode: better than 41 dB SLP mode: better than 41 dB (Rohde & Schwarz noise meter) Audio: SP mode: better than 42 dB LP mode: better than 40 dB SLP mode: better than 40 dB
Operation Temperature:	41°F—104°F (5°C—40°C)
Operating Humidity:	10%—75%
Weight:	16.8 lbs. (7.6 kg) PV-1525: 15.7 lbs. (7.1 kg)
Dimensions:	16-15/16″(W) × 14-5/16″(D) × 4-1/4″(H) (430 mm × 364 mm × 108 mm)
Accessories Supplied:	• Remote control unit (PV-1525) • Wireless Remote control unit (PV-1530) • VHF connecting cable • 300Ω—75Ω transformer • Twin-lead cable • V-Lock Tool
Available Tapes:	1/2″ VHS video cassette tapes NV-T160 Approx. 1073 ft. (327 m), 160, 320, or 480 min. NV-T120 Approx. 810 ft. (247 m), 120, 240, or 360 min. NV-T60 Approx. 417 ft. (127 m), 60, 120, or 180 min.

Weight and dimensions shown are approximate.

Specifications are subject to change without notice.

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INTRODUCTION

This Service Manual contains information which will allow the service technician to understand and service the Panasonic VHS recorder Models PV-1530, PV-1525 and the various accessories that complement the deck.
For a detailed technical explanation, please refer to the Training Manual on these models. Some of the Features incorporated in these models are: soft touch controls 14 position Electronic Tuner programable Timer Remoto Control (PV-1530: Wireless, PV-1525: Wired), One Touch Record Button (O.T.R), Picture Search in SP, LP and SLP, STILL Picture in SP, SLP, Light Editing, Auto Rewind, Frame Advance in SP, SLP, Simplified Fine Slow in SP, SLP.
These models use a multi-function display indicator which combines indicators for time, tape counter, speed, transport functions, and timer record into one easy to read digital display.
The above features plus the VHS format make the PV-1530/PV-1525 table top VCR's an excellent unit for your enjoyment

Just slightly ahead of our time...Panasonic.

CONTENTS

SAFETY PRECAUTIONS

GENERAL GUIDELINES

1. When servicing, observe the original lead dress. If a short circuit is found, replace all parts which have been overheated or damaged by the short circuit.
2. After servicing, see to it that all the protective devices such as insulation barriers, insulation papers shileds are properly installed.
3. After servicing, make the following leakage current checks to prevent the customer from being exposed to shock hazards.
4. USE A SEPARATE ISOLATION TRANSFORMER FOR THIS UNIT WHEN SERVICING.

LEAKAGE CURRENT COLD CHECK

1. Unplug the AC cord and connect a jumper between the two prongs on the plug.
2. Measure the resistance value, with an ohmmeter, between the jumpered AC plug and each exposed metallic cabinet part on the equipment such as screwheads, connectors, control shafts, etc. When the exposed metallic part has a return path to the chassis, the reading should be between 1MΩ and 5.2MΩ.
   When the exposed metal does not have a return path to the chassis, the reading must be ∞.

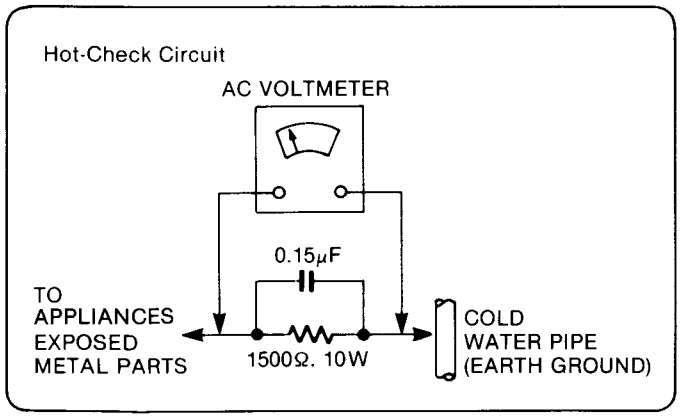


Figure 1

LEAKAGE CURRENT HOT CHECK (See figure 1.)

1. Plug the AC cord directly into the AC outlet. Do not use an isolation transformer for this check.
2. Connect a 1.5kΩ, 10 watts resistor, in parallel with a 0.15μF capacitor, between each exposed metallic part on the set and a good earth ground such as a water pipe, as shown in figure 1.
3. Use an AC voltmeter, with 1000 ohms/volt or more sensitivity, to measure the potential across the resistor.
4. Check each exposed metallic part, and measure the voltage at each point.
5. Reverse the AC plug in the AC outlet and repeat each of the above measurements.
6. The potential at any point should not exceed 0.75 volts RMS. A leakage current tester (Simpson Model 229 or equivalent) may be used to make the hot checks, leakage current must not exceed 1/2 milliamp. In case a measurement is outside of the limits specified, there is a possibility of a shock hazard, and the equipment should be repaired and rechecked before it is returned to the customer.

ELECTROSTATICALLY SENSITIVE (ES) DEVICES

Some semiconductor (solid state) devices can be damaged easily by static electricity. Such components commonly are called Electrostatically Sensitive (ES) Devices. Examples of typical ES devices are integrated circuits and some field-effect transistors and semiconductor "chip" components. The following techniques should be used to help reduce the incidence of component damage caused by static electricity.

1. Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any electrostatic charge on your body by touching a known earth ground. Alternatively, obtain and wear a commercially available discharging wrist strap device, which should be removed for potential shock reasons prior to applying power to the unit under test.

2. After removing an electrical assembly equipped with ES devices, place the assembly on a conductive surface such as aluminum foil, to prevent electrostatic charge buildup or exposure of the assembly.

3. Use only a grounded-tip soldering iron to solder or unsolder ES devices.

4. Use only an anti-static solder removal device. Some solder removal devices not classified as "anti-static" can generate electrical charges sufficient to damage ES devices.

5. Do not use freon-propelled chemicals. These can generate electrical charges sufficient to damage ES devices.

6. Do not remove a replacement ES device from its protective package until immediately before you are ready to install it. (Most replacement ES devices are packaged with leads electrically shorted together by conductive foam, aluminum foil or comparable conductive material).

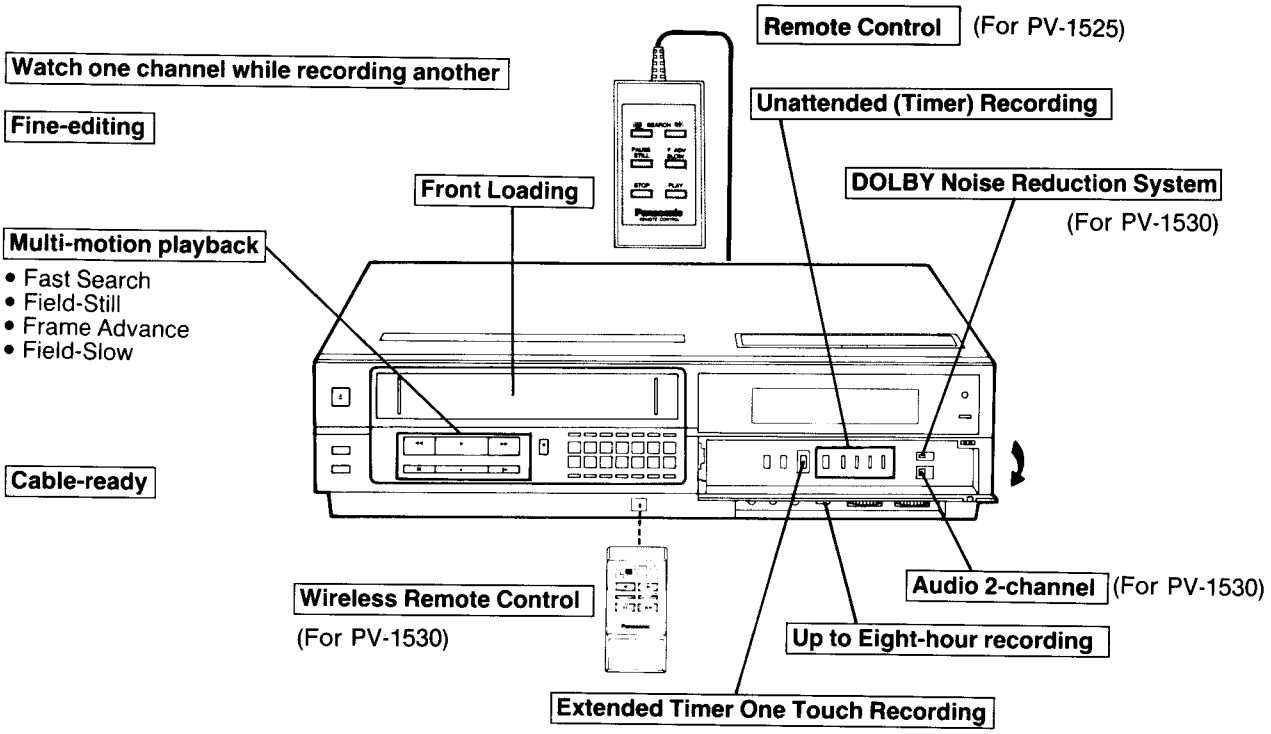
7. Immediately before removing the protective material from the leads of a replacement ES device, touch the protective material to the chassis or circuit assembly into which the device will be installed.
   CAUTION: Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.

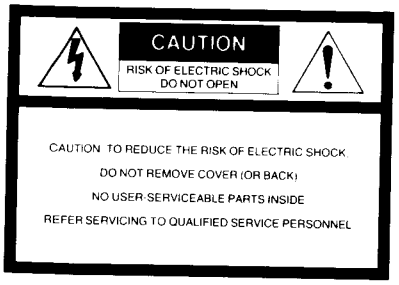
8. Minimize bodily motions when handling unpackaged replacement ES devices. (Otherwise harmless motion such as the brushing together of your clothes fabric or the lifting of your foot from a carpeted floor can generate static electricity sufficient to damage an ES device).

"NOTE to CATV system installer:
This reminder is provided to call the CATV system installer's attention to Article 820-22 of the NEC that provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical".

FEATURES

Your Panasonic VCR has these special features to enhance your viewing enjoyment. Feature operations are described at the referenced page numbers. To locate other information, please refer to the Table of Contents.





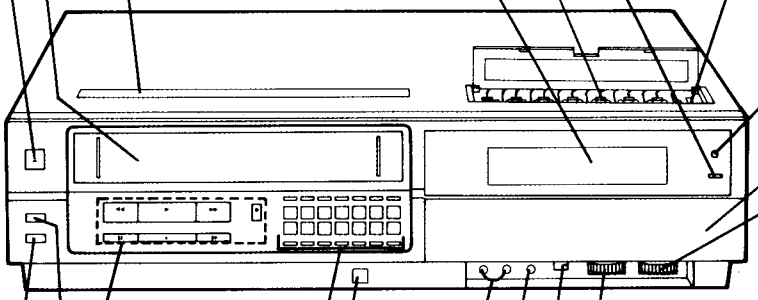
This symbol warns the user that uninsulated voltage within the unit may have sufficient magnitude to cause electric shock. Therefore, it is dangerous to make any kind of contact with any inside part of this unit.

This symbol alerts the user that important literature concerning the operation and maintenance of this unit has been included.
Therefore, it should be read carefully in order to avoid any problems.

DESCRIPTION OF CONTROLS

TOP and FRONT

- **EJECT BUTTON**
  Push this button to remove the cassette. "■" flashes on the Multi Function Display while the tape is being ejected.
- **CASSETTE COMPARTMENT**
  Slide the cassette into the unit until the mechanism draws it in automatically. When a cassette is already installed, a mechanical stop is present.
  Therefore, do not force a cassette into this compartment.
- **CASSETTE WINDOW**
  The condition of the cassette can be observed through this window.
- **MULTI FUNCTION DISPLAY**
- **UHF/VHF/CATV TUNING CONTROLS (INNER DOOR)**
  Used to adjust each channel position for desired channel.
- **RESET BUTTON**
  Pushing this button causes the Tape Counter to return to "0000". By beginning the recording at "0000", subsequent playback will be more convenient.
- **AUTOMATIC FINE TUNING (AFT) SWITCH (INNER DOOR)**
  Under normal conditions, turn the AFT Switch "ON".
- **DOLBY NR INDICATOR** (For PV-1530)
  When DOLBY NR Switch is ON, Indicator light goes on.
- **INNER PANEL (FRONT)** (See Next page)
- **TRACKING CONTROL**
  Use this control during regular playback if the image is partially obscured by bands of noise.



- **Push Button Controls** (See next page).
- **SLOW TRACKING CONTROL**
  Tracking control for use with slow-motion playback.
- **TAPE-SPEED SELECTOR (SP/LP/SLP)**
  Set this selector for the desired tape speed of a recording.
- **HEADPHONES JACK** (For PV-1530)
  For connecting a Headphone.
- **MICROPHONE INPUT JACK (L/R)** (For PV-1530)
  For connecting a Microphone. This is useful for recording and audio dubbing. (PV-1525: One channel)
- **WIRELESS REMOTE SENSOR** (For PV-1530)
  Receives signal from Wireless Remote Control.
- **CHANNEL SELECTOR BUTTONS/INDICATOR LIGHTS**
  Select the channel (2 ~ 83, A ~ W, A-2, A-1) you wish to view or record by pushing any one of these 14 buttons.
- **POWER BUTTON**
  This button is used to turn the VCR on and off. When this button is pushed, counter appears on the Multi Function Display.
- **VCR/TV SELECTOR**
  VCR: To monitor video recordings or to view playback.
  TV: To watch TV or to view another program while recording a different program.
  When this is set to VCR, "VCR" appears on the Multi Function Display.

DESCRIPTION OF CONTROLS (CONTINUED)

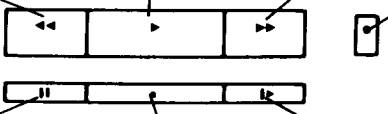
PUSH BUTTON CONTROLS

- **REWIND/SEARCH ◀◀ BUTTON**
  Push this button to rewind tapes. "REW" and " ◀ " appear on the Multi Function Display. During the playback mode, holding this button down will allow you to view the picture in reverse rapidly. " ◀ " flashes.

- **PLAY BUTTON**
  Push this button to play back recorded tapes. "PLAY" and " ▶ " appear on the Multi Function Display.

- **FAST FORWARD/SEARCH ▶▶ BUTTON**
  Push this button to move the tape forward rapidly. "FF and " ▶ " appear on the Multi Function Display. During the playback mode, holding this button down will allow you to view the picture in the forward direction rapidly. " ▶ " flashes.

- **RECORD BUTTON**
  Recording is started by pushing this button and the PLAY Button at the same time. "REC" and " ▶ " appear on the Multi Function Display.



- **PAUSE/STILL BUTTON**
  Push this button to temporarily stop the tape movement in either the recording or playback mode. During playback, a still picture is produced when the pause is used. Push again to release pause. When this button is pushed, "PLAY" and " ■ " appear on the Multi Function Display.

- **STOP BUTTON**
  Push this button to stop the tape. " ■ " appears on the Multi Function Display.

- **SLOW BUTTON**
  While viewing a still picture, push this button to advance the picture one frame at a time. " ▶ " flashes. During the playback mode, pushing this button will allow you to view a slow-motion picture. "SLOW" appears on the Multi Function Display.

INNER DOOR

- **TIMER BUTTON**
  This button is used to put the VCR in Unattended Recording mode after programming functions have been completed.
  When this button is ON, " ⏲ " appears on the Multi Function Display, and you will not be able to operate the unit manually.

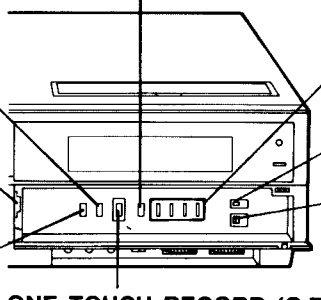
- **TIMER CONTROLS**
  Used to set the clock or to set the Timer to make an Unattended Recording when you are away from home, busy or asleep.

- **AUDIO DUB BUTTON**
  When this button and PLAY Button are pushed simultaneously, sound from another source can be recorded on the tape in place of the original sound. (The original sound will be erased.)

- **DOLBY NR SWITCH** (For PV-1530)
  Set this switch to ON for audio noise reductions. Indicator lights when ON.

- **CHANNEL NUMBER HOLDER**
  Pull it out for changing channel tabs.

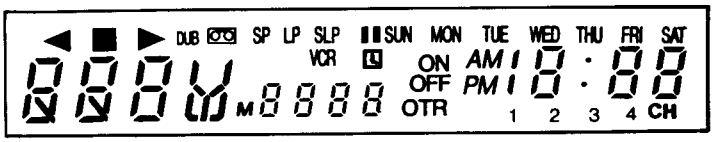
- **MEMORY BUTTON**
  When this button is in the "ON" position, the tape will stop when the Tape Counter reaches "0000" during rewind.



- **INPUT SIGNAL SELECTOR**
  (For PV-1530)
  LINE: For re-recording, audio dubbing or camera recording.
  TUNER: For regular TV recording with monaural sound recording.
  AUDIO 2 CH: For Simulcast (stereo) recording.

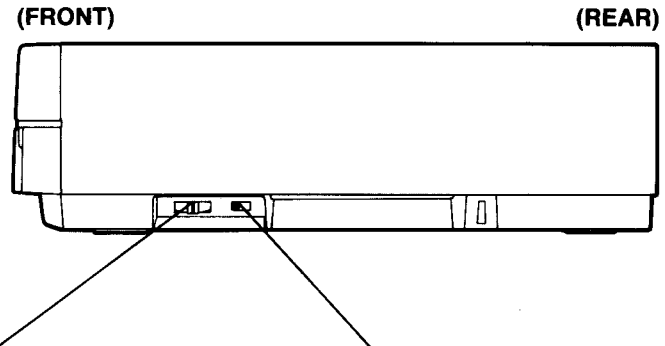
- **ONE TOUCH RECORD (O.T.R.) BUTTON**
  One Touch Recording enables you to do impromptu recordings at any time. Just select the channel and push the ONE TOUCH RECORD Button for 30 minutes to 4 hours of recording.

INDICATOR PANEL



- **DIGITAL CLOCK**
  Normally, the present time is displayed.
- **TAPE COUNTER**
  Tape counter number is displayed.
- **FUNCTION INDICATOR "** **"**
  This shows the mode of VCR (EJECT, PLAY, REC, REW, FF, PAUSE, STILL, SEARCH, STOP, FRAME ADVANCE, SLOW).
- **DEW INDICATOR "** **"**
  This indicator appears if excessive moisture condenses in the unit. If the DEW Indicator is ON, the unit will not operate. If this happens, leave the VCR ON and let it remain at room temperature until this indicator goes off.
- **TIMER INDICATOR "** **"**
  When TIMER Button is set to ON, this indicator appears and you will not be able to operate the unit manually.
- **PROGRAM NUMBER "1", "2", "3", or "4"**
  This shows the program number for Timer Recording.
- **CHANNEL INDICATOR "CH"**
  This indicator flashes when selecting channel for Timer Recording.
- **O.T.R. INDICATOR "OTR"**
  When OTR is set, this indicator appears.
- **MEMORY INDICATOR "M"**
  When MEMORY Button is set to ON, this indicator appears.
- **DUBBING INDICATOR "DUB"**
  When audio dubbing is set, this indicator appears.
- **VCR/TV INDICATOR "VCR"**
  This indicator appears when the VCR/TV Selector is set to VCR.
- **SPEED INDICATOR "SP", "LP", "SLP"**
  This shows the tape speed during recording and playback.
- **CASSETTE-IN INDICATOR "** **"**
  This indicator shows the condition of the cassette tape in the unit.
  No "": There is no cassette in the unit.
  "": There is a cassette in the unit and some interval to the end of the tape.
  Flashing "": The automatic rewind took place at the end of tape during playback, recording or fast forward. The indicator continues flashing until the subsequent mode is set.

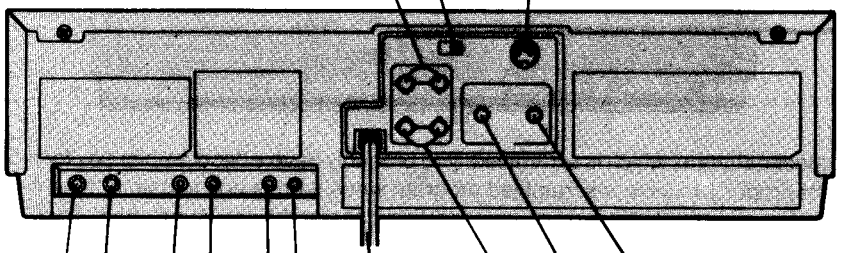
SIDE



- **PICTURE CONTROL**
  Use this control to make the picture softer or sharper, whichever you prefer.
- **AUDIO SELECTOR SWITCH** (For PV-1530)
  This switch is used to select the audio signal for the TV speaker.

REAR

- **RF CONVERTER CHANNEL SELECTOR**
  Set to channel 3 or 4, whichever is not used in your area.
- **UHF ANTENNA OUTPUT TERMINALS (TO TV SET)**
  Connect these terminals to the UHF antenna terminals on the TV.
- **AUXILIARY CONNECTOR**
  If you are using the optional PV-CT2 CATV Adaptor, connect the VCR Remote Control cord of the CATV Adaptor/ PV-CT2 (optional) to this connector.



- **VHF ANTENNA OUTPUT TERMINAL (TO TV SET)**
  Connect this terminal to the VHF antenna terminal on the TV.
- **VHF ANTENNA INPUT TERMINAL (FROM ANTENNA)**
  Connect the VHF antenna to this terminal.
- **AC POWER CORD**
  Connect to a 120 V 60 Hz AC outlet.
- **UHF ANTENNA INPUT TERMINALS (FROM ANTENNA)**
  Connect the UHF antenna to these terminals.
- **REMOTE JACK** (For PV-1530)
  For connection to the Wired Remote Control.
- **CAMERA REMOTE JACK**
  For connection to the Remote Pause Jack of the optional camera.
- **AUDIO INPUT CONNECTOR**
  For connection to a portable video camera or another VCR.
- **VIDEO INPUT CONNECTOR**
  For connection to another VCR or a portable video camera.
- **AUDIO OUTPUT CONNECTOR**
  For connection to a monitor TV, another VCR or an audio tape recorder.
- **VIDEO OUTPUT CONNECTOR**
  For connection to a monitor TV or another VCR.

In some cases, the product may differ slightly from illustrations or photographs.
Please be assured that this difference is not due to mistake but to ongoing product improvement.

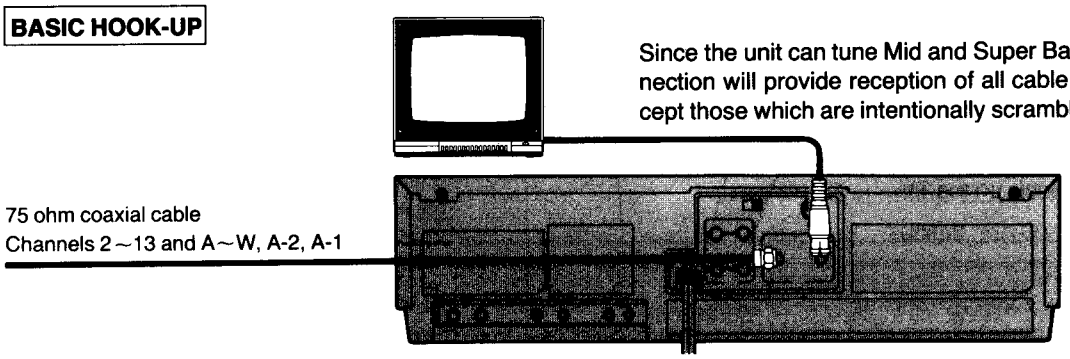
CABLE CONNECTIONS

CABLE–VCR–TV (FOR CATV/PAY CHANNELS RECORDING/PLAYBACK)

The unit has an extended range, and can tune the Mid-Band and Super-Band cable channels. (Channels A ~ W, A-2, A-1). Also, the unit can tune to any of the 70 UHF channels (14 ~ 83). Refer to VCR FINE TUNING.

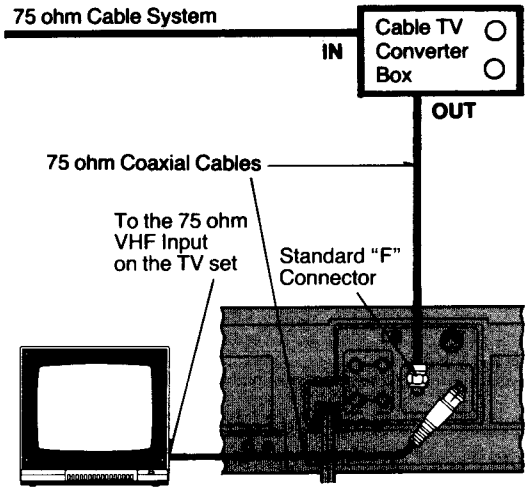
BASIC HOOK-UP

Since the unit can tune Mid and Super Bands, this connection will provide reception of all cable channels except those which are intentionally scrambled.

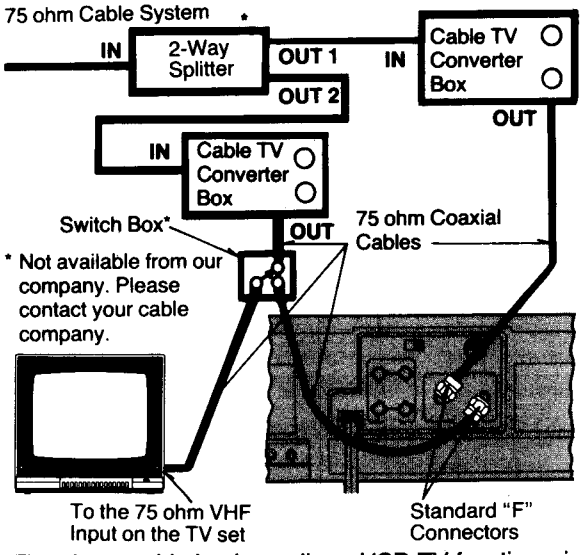


However, if you subscribe to a special channel which is scrambled–you probably have a descrambler box for proper reception. The unit by itself cannot properly receive a scrambled program since it does not contain a descrambler. In order for the unit to properly receive a scrambled program, your existing descrambler must be used. There are two commonly used methods of connection in this case.

TYPICAL CABLE SYSTEM HOOK-UPS WITH CABLE CONVERTER/DESCRAMBLER BOXES



The above cable hook-up allows VCR-TV functions except for viewing one channel while recording another.



The above cable hook-up allows VCR-TV functions, including viewing one channel while recording another, but it requires two cable TV Converter Boxes, one Switch Box and one 2-Way Splitter.

Since the unit has an extended range of tuning, tuning-programming of non-scrambled Mid-Band and Super-Band TV programs is possible. When a cable converter or descrambler box is connected to the unit, all Unattended Recording functions will continue to operate with the exception of changing channels automatically. Channel selection will have to be performed with the cable converter. Unattended Recording is therefore limited to one channel at any given time.

- Using the CATV Adaptor/PV-CT2 and the cable descrambler box:
  All functions (e.g. Timer Recording, Recording one channel while watching another) will be operable for both regular TV channels and one pay TV channel. If you use the PV-CT2, refer to the Operating Instructions of the PV-CT2.

Note to CATV system installer:

This reminder is provided to call the CATV system installer's attention to Article 820-22 of the NEC that provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical.

GLOSSARY OF TERMS

ACC

Automatic Color Control used to maintain an overall constant color signal level in the color circuits.

ACK

Automatic Color Killer.

Adjacent Track

This is the name of the video track to the immediate left or right of the track of concern.

AFC

Automatic Frequency Control used to phase-lock the color circuits to either the recording or playback color signal, in order to achieve a stable color signal.

AFT

Automatic Fine Tuning...This is a special circuit found in most recent TV sets which makes the local oscillator of the TV tuner follow the channel of concern in order to produce a stable IF frequency. In other words, if for any reason the TV station being received changes frequency, the AFT circuit will automatically compensate so that no interference will be seen on the screen, i.e., no manual fine tuning is necessary.

AGC

Automatic Gain Control used to maintain an overall constant picture level in the luminance circuits.

APC

Automatic Phase Control used to help phase lock the color circuits to either the recording or playback color signal in order to achieve a stable color signal.

Azimuth

A term used to describe the left to right tilt of the gap of a recording head, if it could be viewed straight on.

Balanced Modulator

A circuit so designed to give as an output the frequency sum or frequency difference of its two input signals. Any special characteristics of one of the input signals will be present in the output signal.

Beats

A term used to described the unwanted signals produced when two original signals are allowed to be mixed together.

Bipolar PG

Pulse Generator signals that have both positive and negative excursions.

Burst

A short time occurence (8 to 10 cycles) of the 3.58MHz subcarrier signal, appearing right after horizontal sync but centered on the blanking portion of the video waveform. Burst is used to keep the color oscillator of a TV receiver locked to the broadcast station.

B/W

Abbreviation for Black and White.

C

Capacitor.

C Signal

The color portion of a video signal.

Capstan

A small rotating metal dowel which drives the recording tape to assure positive tape movement.

Chroma

The color portion of a video signal.

Chrominance

The color portion of a video signal.

Clamp

The process of giving an AC signal a specific DC level.

Control Signal

A special signal recorded onto the video tape which is used during playback as a reference for the servo circuits.

Converted Subcarrier

This is the process of frequency shifting the color 3.58MHz subcarrier and its sidebands down to 629kHz.

Crosstalk

The name given to the unwanted signals obtained when a video head picks up information from an adjacent track.

CUE

To scan the playback picture at a faster than normal speed in the Forward direction.

D

Diode.

DL

Delay Line.

Dark Clip

After emphasis, the negative going spikes (undershoot) of a video signal may be too large in amplitude for safe FM modulation. A dark clip circuit is used to cut off these spikes at an adjustable level.

DDC

Direct Drive Cylinder...as used in VHS, this means that the video heads are driven by a self-contained brushless DC motor using no belts or gears. DD cylinders produce pictures with better stability.

Delta Factor (Δf)

A term used to indicate that a playback signal off the video tape has some jitter or "wow and flutter". Δf, or "a change in frequency" means that the color signal off the tape is not a stable frequency of 629kHz, but rather a signal whose frequency at any instant is some small amount above or below 629kHz.

Deviation

A term used to describe how far the FM carrier swings when it is modulated. In VHS the upper limit is 4.4MHz.

Dew Detector

A variable resistor whose resistance value depends upon the ambient humidity.

Dihedral

A term used to describe the relative position between the two video heads as they are mounted in the head cylinder. Perfect dihedral means that the tips of the heads are exactly 180° apart.

Dropout

A momentary absence of FM or color signal off the tape, whether due to uneven oxide or a coating of dust on the tape or video heads.

Duty Cycle

In describing a rectangular waveform, the "duty" refers to the percentage of off time and on time for one complete cycle. 50—50 means that there are equal periods of off time and on time for one cycle and this would be a square wave.

E-E

Electronics to Electronics...this is the picture viewed on the TV set when a recording is being made. This picture goes through some but not all of the circuits of the recorder and is used to test the operation of said circuits.

EQ

Shortened form of "Equalization", used in the audio circuits.

Emphasis

The process of boosting the level of the high frequency portions of the video signal.

FG

Frequency Generator used in the servo circuits.

FL

Filter.

FM Signal

The luminance portion of the video signal is used to control the frequency of astable multivibrator. The output of this multivibrator is a frequency modulated (FM) signal shifting from 3.4 MHz to 4.4 MHz (plus sidebands).

Field

One half of a television picture. A field consists of 262.5 horizontal scanning lines across the picture tube. Two fields are necessary to complete a fully scanned TV picture (frame). First, one field is "sprayed" on the picture tube, starting at the top of the tube with Line 1, and ending at the bottom with Line 262.5. Then, the next field begins at the top of the tube again with Line 262.5 and ends at the bottom with Line 525. The lines of the second field lie in-between the lines of the first field. This property of falling in-between lines is called "interlacing". The two sweeps of the picture tube, or two fields make up one complete TV picture of "frame". Frame repetition is 30 Hz, therefore field repetition is 60 Hz.

Flagwaving

This is the term used to describe a TV sets ability to accept unstable playback pictures from a video tape recorder. All home VTR's have some degree of playback instability. A TV set with a long horizontal AFC time constant may not recover from the VTR's instability before the active picture is being scanned. This can cause a bending or flapping from side to side of the top inch or so of the screen. This movement is called "flagwaving".

Frame

One complete TV picture. See "Field".

Gate

A circuit which will deliver an output only when a specific combination of its inputs are present. For use in analog or digital applications.

Guard Band

This is the space between video tracks on the video tape in the SP mode. Guard bands contain no information.

Hall Effect IC

An external magnetic field causes current to flow in this type of device.

HD

Horizontal Drive signal.

Head Cylinder

A cylindrical piece of metal which houses the video heads. The tips of the heads protrude slightly from the surface of the cylinder so that they may scan the tape as the cylinder spins.

Head Switching

The action of turning off during playback, the video head which is not in contact with the video tape. A particular video head will be turned off 30 times per second. This is done so that the head which is not scanning the tape, and therefore not delivering a good signal, cannot contribute any noise to the playback signal.

Head Switching Pulse

The signal which is applied to the Head Amplifier to perform head switching. This is a square wave at 30 Hz, with a 50—50 duty cycle.

Helical

A word used to describe a general type of VTR in which the tape wraps around the video head cylinder in the shape of a 3-dimensional spiral, or "helix". The video tracks are recorded as a series of slanted lines.

IC

Integrated Circuit.

Interchangeability

A term used to describe how well a particular VTR will play back a tape recorded on another VTR of the same type. Good interchangeability indicates good playback.

Interlacing

The property of the scan lines of two television fields to lie in-between each other. See "Field".

Interleaving

A term used to indicate that the harmonics of the chrominance signal lie in-between the harmonics of the luminance portion of the video signal as it is viewed on a spectrum analyzer. This means that the color information of a video signal does not interfere with, although it is broadcast at the same time as, the luminance information.

Also, signals which have this interleaving property are not readily seen on a TV screen, because of their virtual cancellation characteristics.

Interleaving signals (fi) must have the following frequency relationship:

$$fi = (\frac{2n+1}{2}) \times fH \ (n = 0, 1, 2, 3, 4.....)$$

$fH = 15{,}734$ Hz (H sync frequency)

Jitter

The name of the effect on the playback picture if a VTR has too much "wow and flutter". The picture appears to have a rapid shaking movement.

L

Coil.

Luminance

This is the portion of video signal which contains the sync and B/W information.

MMV

Monostable Multi-Vibrator...Usually an IC device which gives a logic high or low output with a variable duration upon receipt of an input pulse or transition.

Non-Linear Emphasis

This is similar to regular emphasis with the difference that small level high frequency portions of the signal are given more of a boost than higher level high frequency portions.

NTSC

The National Television Systems Committee. These four letters identify the United States color television standard.

O.T.R.

One Touch Recording (O.T.R.) enables you to do impromptu timer recordings at any time. When you have to go out for urgent matters or you are going to sleep, this function is very useful. Just select the channel and push the O.T.R. Button for 30 minutes to 2 hours of recordings. After recording, the VCR will be turned off automatically.

PG

Pulse Generator used in the servo circuits.

Q

A term used to describe the graphic response of a filter or tuned amplifier.

R

Resistor.

Review

To scan the playback picture at a faster than normal speed in the Reverse direction.

RF

Radio Frequencies.

Rotary Chroma

The name of the process used in VHS to change the phase of the chrominance signal at a rate of 15,734 (same as H sync frequency) times per second.

Rotary Transformer

A device used to magnetically couple RF signals to and from the spinning video heads, thus eliminating the need for brushes.

Sample and Hold

A process used in comparator circuits by which the value of a particular signal is measured at a specific moment in time...then this value is stored for later use.

Search

To scan the playback picture at a faster than normal speed in either the forward or reverse direction.

Servo

Short for Servo mechanism. This is an electro-mchanical device whose mechanical operation (for instance motor speed) constantly being measured and regulated so that it closely matches or follows an external reference.

Skew

Another way of saying Tension Error. Skew is actually the change of size or shape of the video tracks on the tape from the time of recording to the time of playback. This can occur as a result of poor tension regulation by the VTR, or by ambient conditions which affect the tape.

Subcarrier

The name of the 3.58MHz continuous wave signal used to carry color information.

SS

Slow and Still.

T

Transtormer.

TP

Test Point.

TR

Transistor.

Tension Error

See "Skew".

Time Base Stability

A term used to describe how closely the playback video signal from a VTR matches an external reference video signal...in regard to sync timing rather than picture content.

Tracking

This is the action of the spinning video heads during playback when they accurately track across the video RF information laid down during recording. Good tracking indicates that the heads are positioning themselves correctly, and are picking up a strong RF signal. Poor tracking indicates that the heads are off track, and picking up low level RF signal or noise.

VCO

Voltage Controlled Oscillator...An oscillator whose frequency of oscillation is governed by an external voltage.

Video Head

This is the electro-magnet used to develop magnetic flux which will put RF information on the tape. In VHS, two video heads are mounted in a rotating cylinder around which the video tape is wrapped. As the cylinder spins, each video head is allowed to alternately scan the tape.

Video Track

The name of the RF information laid down during recording, as a particular video head scans across the tape.

VHS

Video Home System.

VTR

Video Tape Recorder.

VV

Video to Video...or...the actual playback picture produced from a tape during playback.

VXO

Voltage Controlled Crystal Oscillator...Similar to VCO except that a quartz crystal is sued as a reference which can be varied.

White Clip

After emphasis, the positive going spikes (overshoot) of the video signal may be too large for safe FM modulation. A white clip circuit is used to cut off these spikes at an adjustable level.

XTAL

Abbreviation for crystal.

Y Signal

The B/W portion of a video signal containing B/W information and sync.

ORDER NO. VRD-8404-569
B3

Service Manual

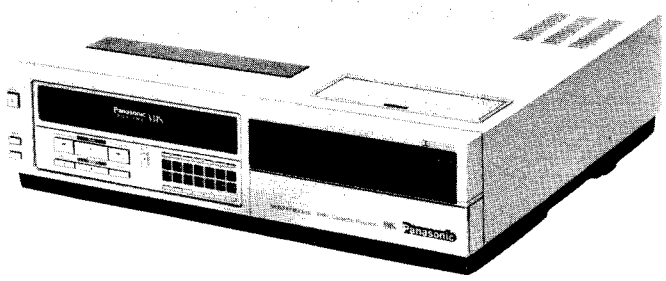
Video Cassette Recorder

Vol. 2

Panasonic Omnivision VHS

Mechanical Adjustment Procedures
Electrical Adjustment Procedures

PV-1530
PV-1525



SPECIFICATIONS

Power Source:	120V AC ±10%, 60Hz ±0.5%
Power Consumption:	Approx. 22 watts
Television System:	EIA Standard (525 lines, 60 fields) NTSC color signal
Video Recording System:	4 rotary heads, helical scanning system Luminance: FM azimuth recording Color signal: Converted subcarrier phase shift recording
Audio Track:	2 track (PV-1525: 1 track)
Tape Format:	Tape width 1/2" (12.7mm), high density tape
Tape Speed:	SP mode: 1-5/16 i.p.s. (33.35mm/s) LP mode: 21/32 i.p.s. (16.67mm/s) SLP mode: 7/16 i.p.s. (11.12mm/s)
Record/Playback Time:	8 HRS. with 160 min. type tape used in SLP mode
FF/REW Time:	Less than 6 min. with 120 min. type tape
Heads:	Video: 4 rotary heads Audio/Control: 2 stationary head (PV-1525: 1 stationary head) Erase: 1 full track erase 1 audio track erase
Input Level:	Video: VIDEO IN Jack (RCA type) 1.0Vp-p, 75Ω unbalanced Audio: AUDIO IN Jack (RCA type) (Right, Left) −20dB, 50kΩ unbalanced MIC IN jack (M6) (Right, Left) −70dB, 4kΩ unbalanced PV-1525: MIC IN jack (M3) −70dB, 4kΩ unbalanced TV Tuners: VHF Input: VHF Ch2-Ch13, cable channels "A"~"W", "A-2", "A-1" 75Ω unbalanced UHF Input: Ch14-Ch83, 300Ω balanced
Output Level:	Video: VIDEO OUT Jack (RCA type) 1.0Vp-p, 75Ω unbalanced Audio: AUDIO OUT Jack (RCA type) (Right, Left) −9dB, 1kΩ unbalanced PV-1525: −6dB, 600Ω unbalanced RF Modulated: Ch3/Ch4 switchable, 72dBμ, (Open Voltage) 75Ω unbalanced
Video Horizontal Resolution:	Color: more than 230 lines B/W: more than 230 lines
Audio Frequency Response: (10dB down)	SP mode: 100Hz~8kHz LP mode: 100Hz~6kHz SLP mode: 150Hz~5kHz
Signal-to-Noise Ratio:	Video: SP mode: better than 41dB LP mode: better than 41dB SLP mode: better than 41dB (Rohde & Schwarz noise meter) Audio: SP mode: better than 42dB LP mode: better than 40dB SLP mode: better than 40dB
Operation Temperature:	41°F—104°F (5°C—40°C)
Operating Humidity:	10%—75%
Weight:	16.8 lbs. (7.6kg) PV-1525: 15.7 lbs. (7.1kg)
Dimensions:	16-15/16"(W)×14-5/16"(D)×4-1/4"(H) (430mm×364mm×108mm)
Accessories Supplied:	• Remote control unit (PV-1525) • Wireless Remote control unit (PV-1530) • VHF connecting cable • 300Ω—75Ω transformer • Twin-lead cable • V-Lock Tool
Available Tapes:	1/2" VHS video cassette tapes NV-T160 Approx. 1073ft. (327m), 160, 320, or 480 min. NV-T120 Approx. 810ft. (247m), 120, 240, or 360 min. NV-T60 Approx. 417ft. (127m), 60, 120, or 180 min.

Weight and dimensions shown are approximate.

Specifications are subject to change without notice.

Panasonic®

Matsushita Engineering & Service Company
Division of Matsushita Electric
Corporation of America
50 Meadowland Parkway, Secaucus,
New Jersey 07094

Panasonic Hawaii Inc.
91-238 Kauhi St. Ewa Beach
P.O. Box 774
Honolulu, Hawaii 96808-0774

Matsushita Electric
of Canada Limited
5770 Ambler Drive, Mississauga,
Ontario, L4W 2T3

Panasonic Sales Company,
Division of Matsushita Electric
of Puerto Rico, Inc.
Ave, 65 De Infanteria, KM 9.7
Victoria Industrial Park
Carolina, Puerto Rico 00630

CONTENTS

IMPORTANT SAFETY NOTICE

There are special components used in this equipment which are important for safety. These parts are shaded on the schematic diagram and on the replacement parts list. It is essential that these critical parts should be replaced with manufacturer's specified parts to prevent shock, fire, or other hazards. Do not modify the original design without permission of manufacturer.

SAFETY PRECAUTIONS

GENERAL GUIDELINES

1. When servicing, observe the original lead dress. If a short circuit is found, replace all parts which have been overheated or damaged by the short circuit.
2. After servicing, see to it that all the protective devices such as insulation barriers, insulation papers shields are properly installed.
3. After servicing, make the following leakage current checks to prevent the customer from being exposed to shock hazards.
4. USE A SEPARATE ISOLATION TRANSFORMER FOR THIS UNIT WHEN SERVICING.

LEAKAGE CURRENT COLD CHECK

1. Unplug the AC cord and connect a jumper between the two prongs on the plug.
2. Measure the resistance value, with an ohmmeter, between the jumpered AC plug and each exposed metallic cabinet part on the equipment such as screwheads, connectors, control shafts, etc. When the exposed metallic part has a return path to the chassis, the reading should be between 1MΩ and 5.2MΩ.
   When the exposed metal does not have a return path to the chassis, the reading must be ∞.

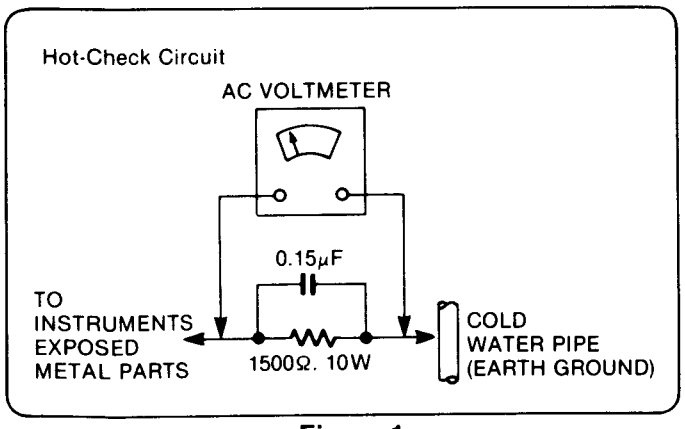


Figure 1

LEAKAGE CURRENT HOT CHECK (See figure 1.)

1. Plug the AC cord directly into the AC outlet. Do not use an isolation transformer for this check.
2. Connect a 1.5kΩ, 10 watts resistor, in parallel with a 0.15μF capacitor, between each exposed metallic part on the set and a good earth ground such as a water pipe, as shown in figure 1.
3. Use an AC voltmeter, with 1000 ohms/volt or more sensitivity, to measure the potential across the resistor.
4. Check each exposed metallic part, and measure the voltage at each point.
5. Reverse the AC plug in the AC outlet and repeat each of the above measurements.
6. The potential at any point should not exceed 0.75 volts RMS. A leakage current tester (Simpson Model 229 or equivalent) may be used to make the hot checks, leakage current must not exceed 1/2 milliamp. In case a measurement is outside of the limits specified, there is a possibility of a shock hazard, and the equipment should be repaired and rechecked before it is returned to the customer.

MECHANICAL ADJUSTMENT PROCEDURES

DISASSEMBLY OF CABINET PARTS

1. DISASSEMBLY FLOWCHART

This flowchart indicates disassembly steps of the cabinet parts and the P. C. Boards in order to find the item(s) necessary for servicing. When reassembling, perform the step(s) in the reverse order. Bottom Plate can be removed separately.

Note:
1. When removing the front panel, work with care so as not to break the locking portions of the panel.
2. The 3 screws indicated by arrow marks on the bottom plate should be removed to remove the top case.

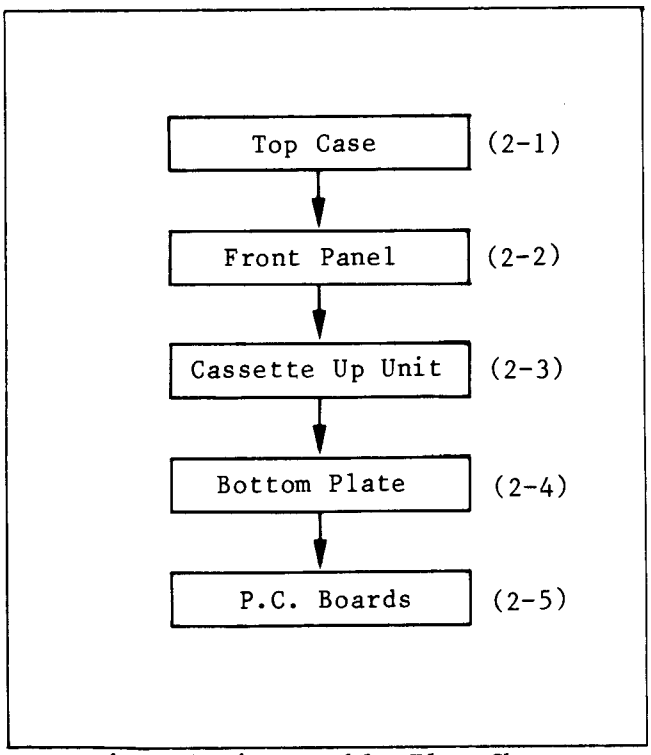


Fig. M1 Disassembly Flow Chart

2. DETAILED DISASSEMBLY METHOD

2-1. Removal of the Top Case

Place the deck so that the left side faces down, hold the deck with your hand and remove 3 screws (A).

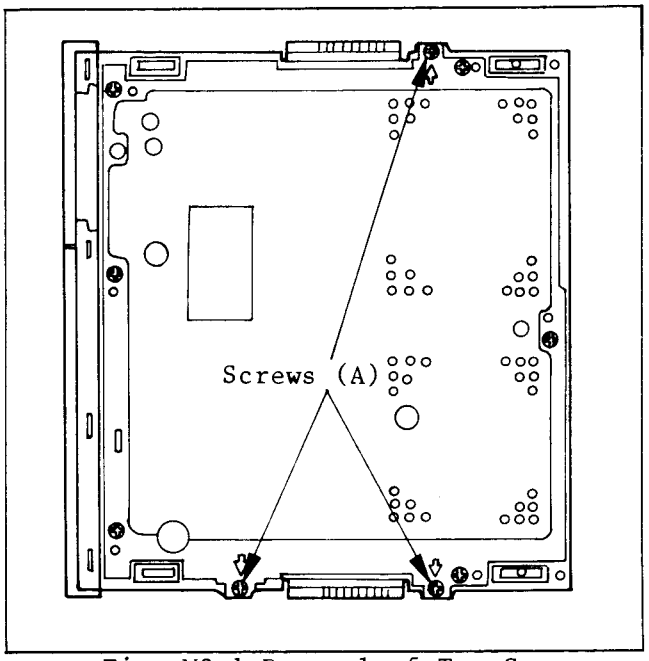


Fig. M2-1 Removal of Top Case

Remove 2 screws (B).
Then pull the top case toward the back and then carefully lift the front portion to remove.

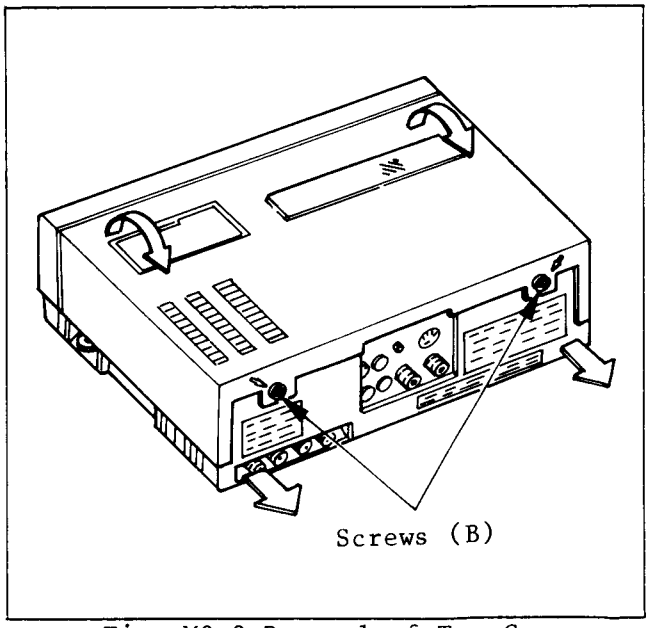


Fig. M2-2 Removal of Top Case

2-2. Removal of the Front Panel

Release 3 locking tabs. Then hold both right and left top portions of the panel and turn it towards the front of deck to remove.

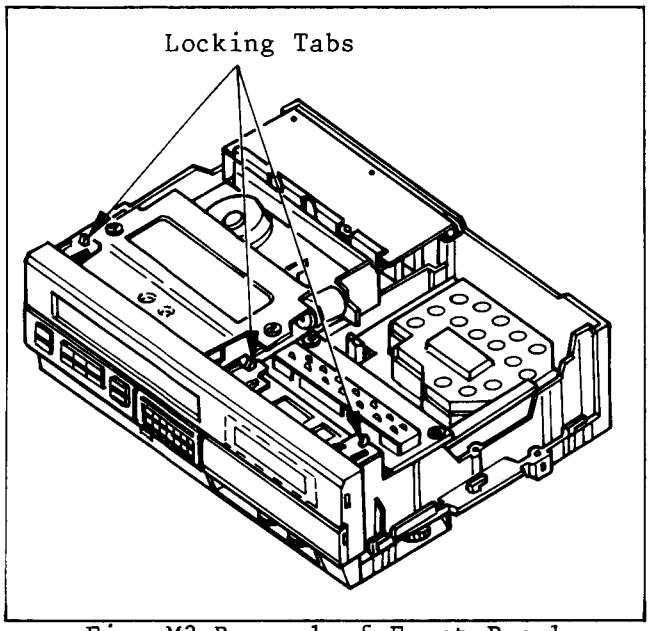


Fig. M3 Removal of Front Panel

2-3. Removal of the Cassette Up Unit

Remove 3 Screws (C) and unplug the connector P1551 on Connection C.B.A. Then remove Cassette Up Unit. First slightly lift the left side of Cassette Up Unit and then lift right side of Cassette Up Unit.

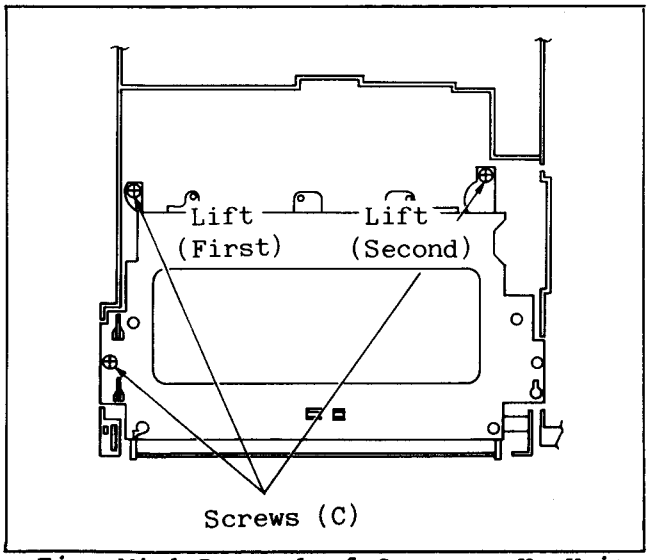


Fig. M4-1 Removal of Cassette Up Unit

2-3-1. Cassette Holder Down Position without Cassette Tape

The cassette Holder in down position without cassette tape should be done according to the following procedures for some adjustments.

1. Turns the power sw ON.
2. Insert 2 screwdrivers into the Cassette Up Unit from the front, positioning them right and left, as shown in (A) and (B) in Fig. M4-2. The screwdrivers should keep both side holder guide levers in the unlock position. By pushing down while pushing toward the rear on the Holder unit, the loading action will begin. Continue this pressure and screwdriver position until the Cassette Holder Unit clears the 3 locking tabs. After clearing the locking tabs the Cassette Up unit will move into the down position by itself.

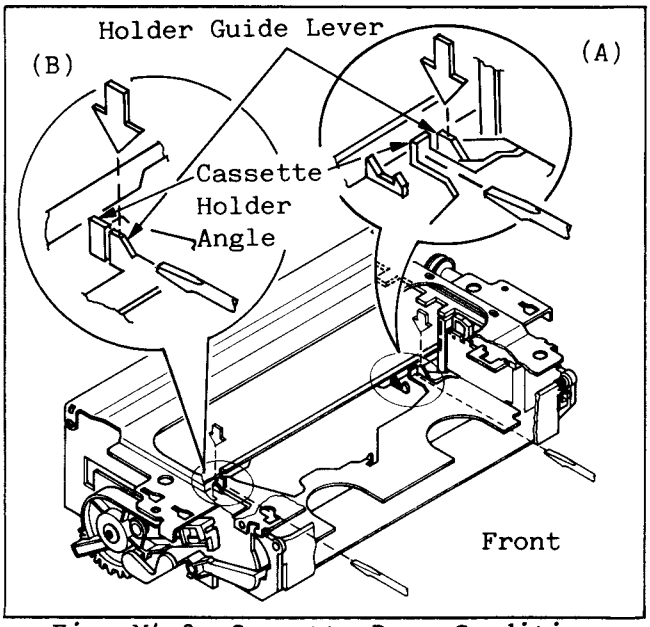


Fig. M4-2 Cassette Down Condition Without Cassette Tape

3. Connect TP6005 and GND on System Control Section through a jumper wire.
4. After the adjustment, remove the jumper wire.

Note :
When TP6005 and GND are connected through a jumper wire, Eject can be performed but not Cassette Loading.

2-4. Removal of the Bottom Plate
Place the deck so that the left side faces down, hold the deck with your hand and remove 6 screws (D).

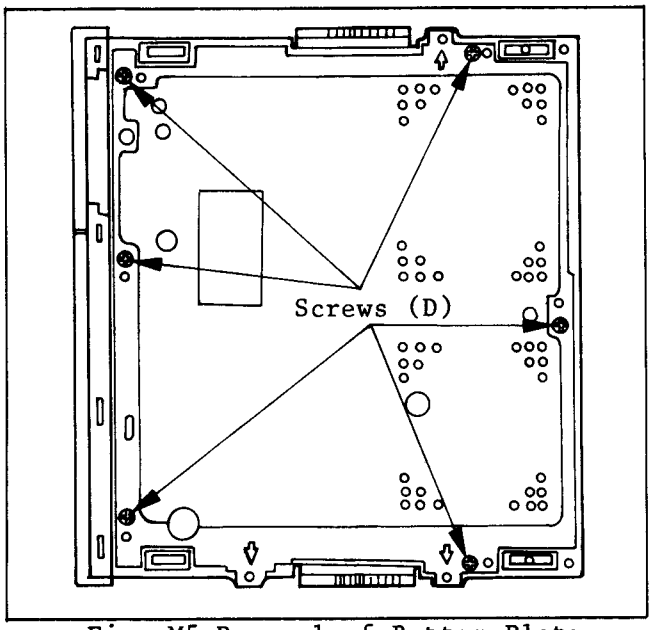


Fig. M5 Removal of Bottom Plate

2-5. Opening of the P.C. Boards (Bottom, Signal Process)

Place the deck so that the left side faces down, hold the deck with your hand.

2-5-1. Servo /Sub Audio /System Control C.B.A.

Remove 5 red screws (E) and Locking Tab.

Then open the Servo /Sub Audio /System Control P.C. Board.

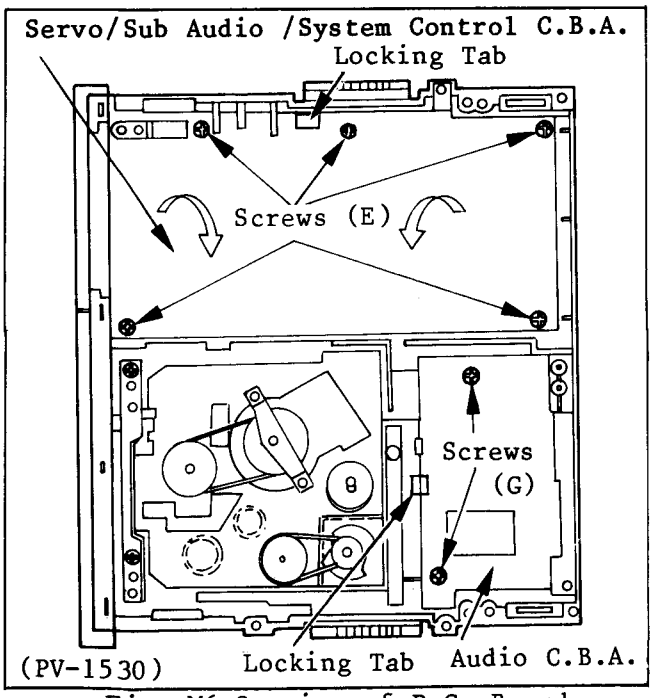


Fig. M6 Opening of P.C. Board

2-5-2. Signal Process C.B.A.

1. Disconnect the AC plug from the AC outlet.
2. Place the deck so that the left side faces down, hold the deck with your hand and remove 2 screws (G) and Locking Tab on the Audio C.B.A. Then open the Audio C.B.A.
3. Remove the screw and jumpers on the U/V Tuner Unit from bottom side.
4. Remove the 5 red screws (F).
5. Lift Signal Process C.B.A. Slightly and then turn the C.B.A. to set it as shown in Fig M8.
6. Remove the Top Cover Support Angle.

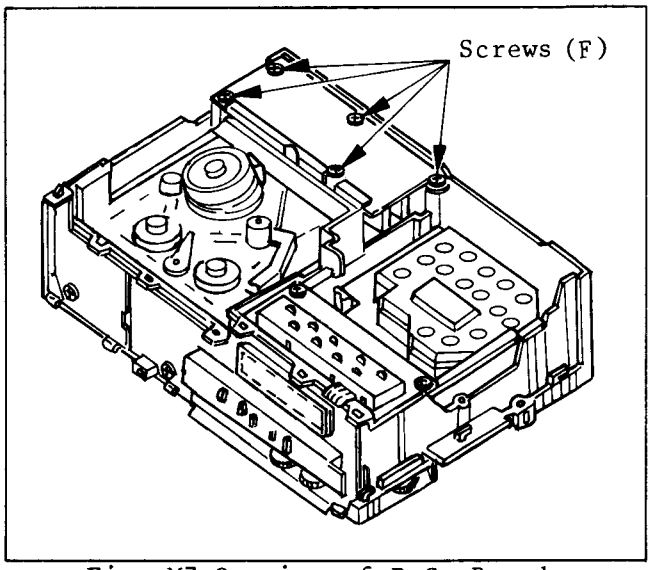


Fig. M7 Opening of P.C. Boards

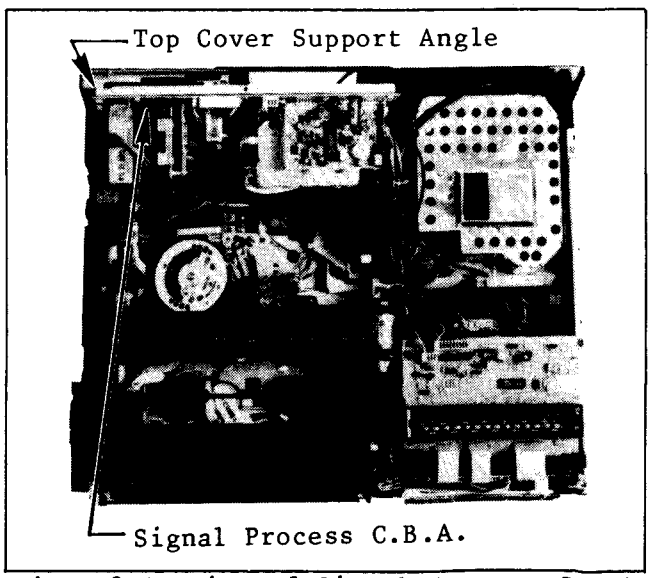


Fig. M8 Setting of Signal Process C.B.A.

Note :

Be careful lest the surrounding wires should be damaged.

PROCEDURE FOR CLEANING OF UPPER CYLINDER UNIT

. Position the video head to permit access for cleaning and hold the upper cylinder to keep it from turning while cleaning.
. Gently rub the video head in direction of tape travel with Head Cleaning Stick (VFK27) moistened with freon TF.
. Repeat for the other video head.

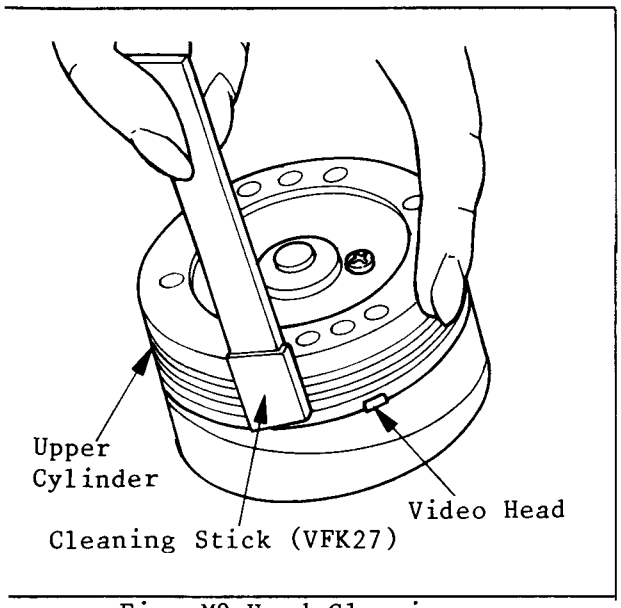


Fig. M9 Head Cleaning

te:
. Do not rub vertically.
. Do not apply any pressure to head. If contaminant is not easily removed, continued gentle wiping will usually remove the substance.
. After claering play a new tape for at least 10 minutes.

ADJUSTMENT PROCEDURES

. REPLACEMENT OF UPPER CYLINDER UNIT

rk with extreme care when removing or placing the Upper Cylinder Unit.
not touch video heads during rvicing.
. Unsolder the 8 lead pins on the Head Relay Board.
. Remove the 2 screws and gently lift the Upper Cylinder Unit from the shaft.

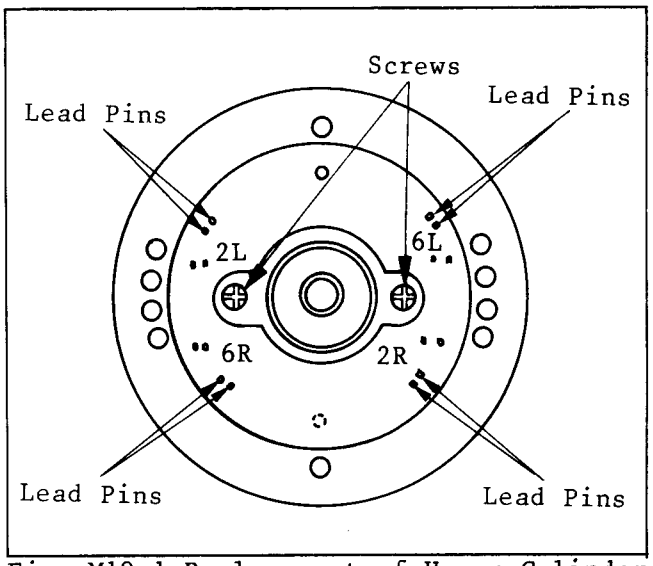


Fig. M10-1 Replacement of Upper Cylinder Unit

3. Before reinstalling a new unit, clean the D.D. Cylinder shaft and the surface that it engages with on the Upper Cylinder with a soft cloth dampened with Freon TF.

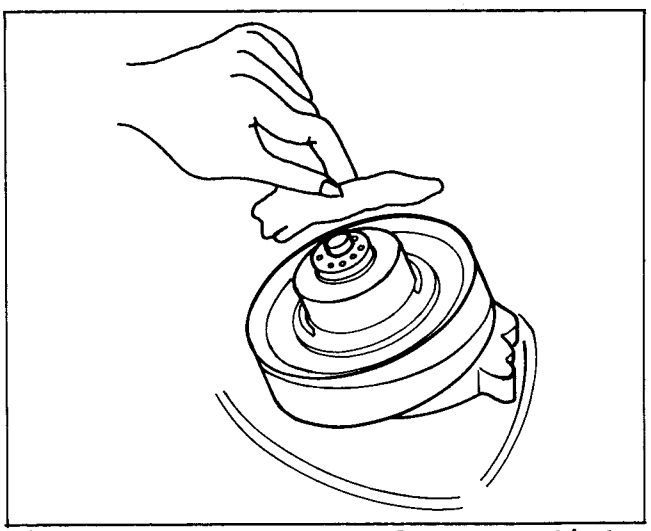


Fig. M10-2 Replacement of Upper Cylinder Unit

4. Install new Upper Cylinder Unit carefully so that the 8 lead pins are properly matched on the Head Relay Board.
For details on the installation position, refer to Fig. M10-3.

Note :
Install the 8 lead pins with extreme care so as not to damage them.

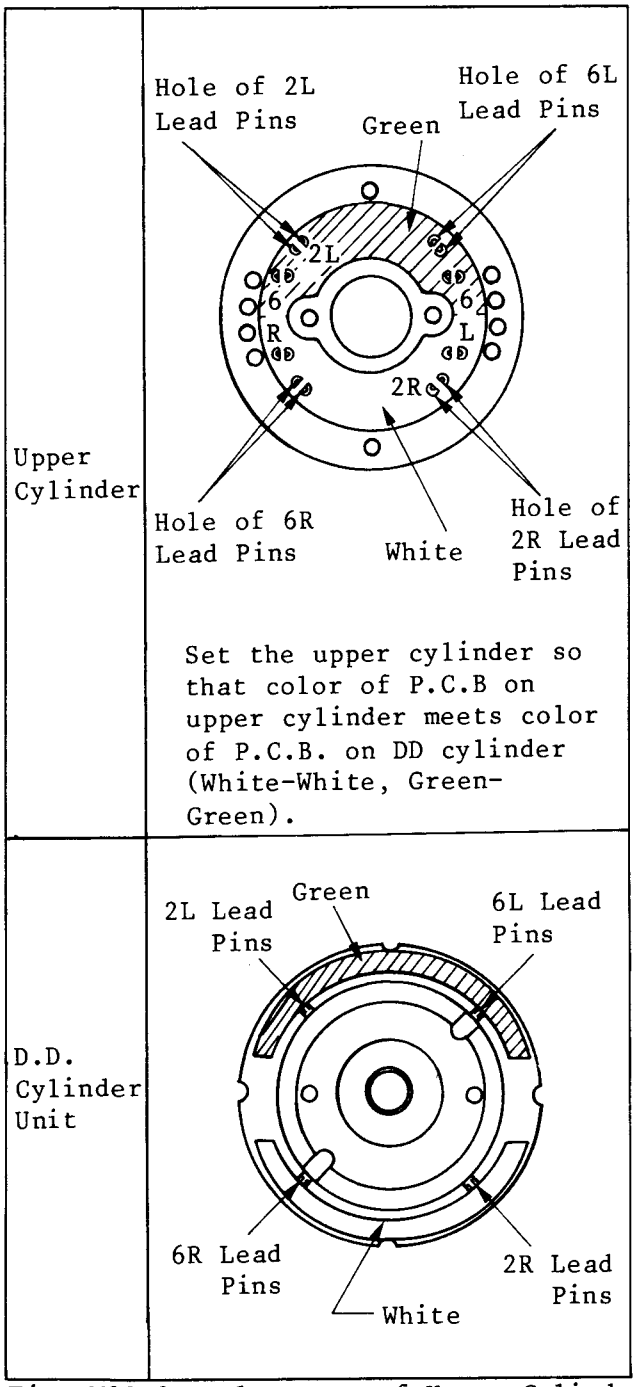


Fig. M10-3 Replacement of Upper Cylinder Unit

5. Tighten the 2 screws and resolder the 8 lead pins to the Head Relay Board.
6. Clean the Upper Head Cylinder with a deerskin swab saturated with Freon TF.

Note :

Upon completion of replacement, confirm performance. And if required, perform "TAPE INTERCHANGEABILITY ADJUSTMENT".

2. REPLACEMENT OF D.D. CYLINDER UNIT

Work with extreme care when removing or replacing the D.D. Cylinder Unit. Do not touch video heads during servicing.

1. Remove the 2 screws and shield case on connectors.
2. Disconnect 2 connectors (P1501 and P1502) from the D.D. Cylinder Unit.
3. Remove screw (A) and discharge angle.
4. Remove the D.D. Cylinder Unit by removing 3 screws (B).

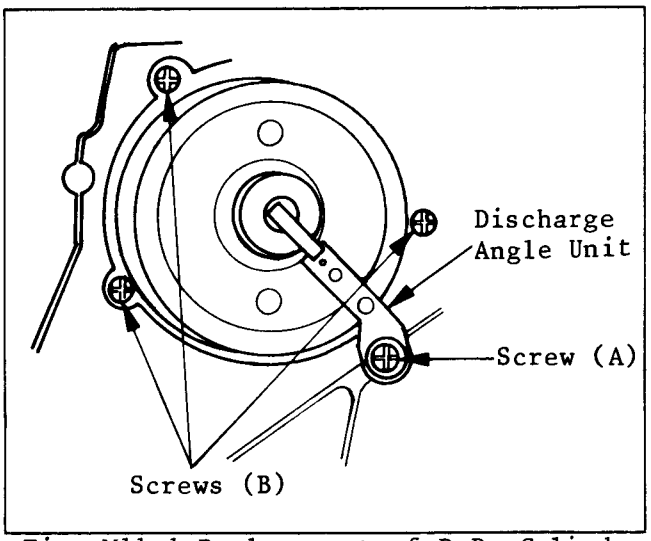


Fig. M11-1 Replacement of D.D. Cylinder Unit

Note:

Since there is very little clearance between D.D. Cylinder Unit and chassis, remove the D.D. Cylinder Unit gently and carefully.

5. Remove the Upper Cylinder Unit from the D.D. Cylinder and reinstall it on new one. To perform this step, refer to "REPLACEMENT OF UPPER CYLINDER UNIT" section.
6. Reinstall the new D.D. Cylinder Unit and connect P1501 and P1502. Reinstall the shield case and Discharge Angle Unit.

Note:

1. When reinstalling the New D.D. Cylinder Unit, fit the New D.D. Cylinder Unit to the chassis by turning it counterclockwise.

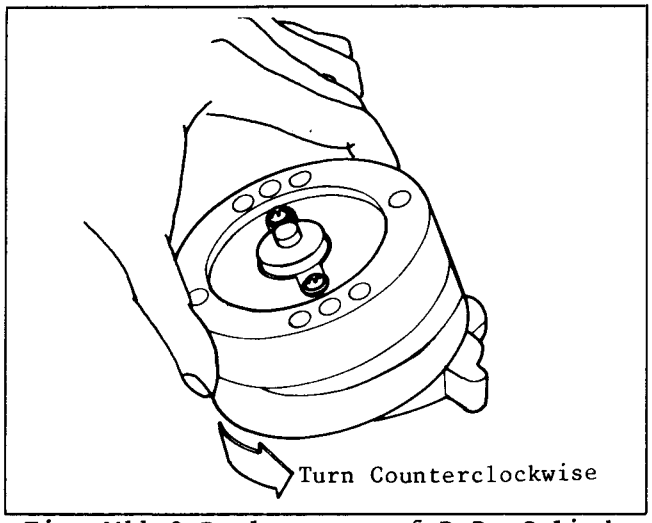


Fig. M11-2 Replacement of D.D. Cylinder Unit

2. Upon completion of replacement, confirm performance.
   If any further maintenance is required, perform "TAPE INTERCHANGEABILITY ADJUSTMENT".

3. CONFIRMATION OF DISCHARGE ANGLE UNIT INSTALLATION POSITION

Check to see if the Discharge Angle Unit is correctly set in a position as close to 1 mm as possible to the upper side from the center of the cylinder shaft as shown in Fig. M12.

Note:

Never install the Discharge Angle Unit to any position to the lower side from the center of the cylinder shaft, but always within a maximum of 1 mm to the upper side of the center of this shaft.

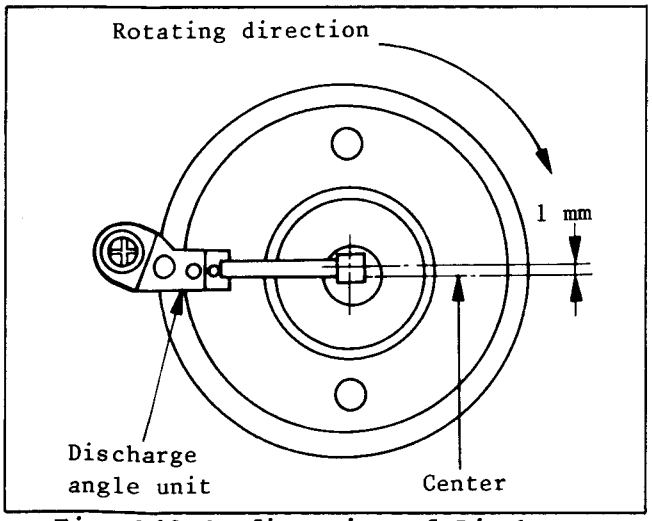


Fig. M12 Confirmation of Discharge Angle Unit Position

4. ADJUSTMENT OF V-STOPPERS

* Equipment Required:
  V-Stopper Adjustment Fixture VFKS0029

1. Remove the D.D. Cylinder Unit from chassis. (Upper Cylinder Unit does not need removal from the D.D.Cylinder Unit.) Refer to "REPLACEMENT OF D.D. CYLINDER UNIT" section.
2. Loosen 4 screws (A) and install the fixture.
   Push the V-stoppers snugly against the pins and tighten the 4 screws(A).

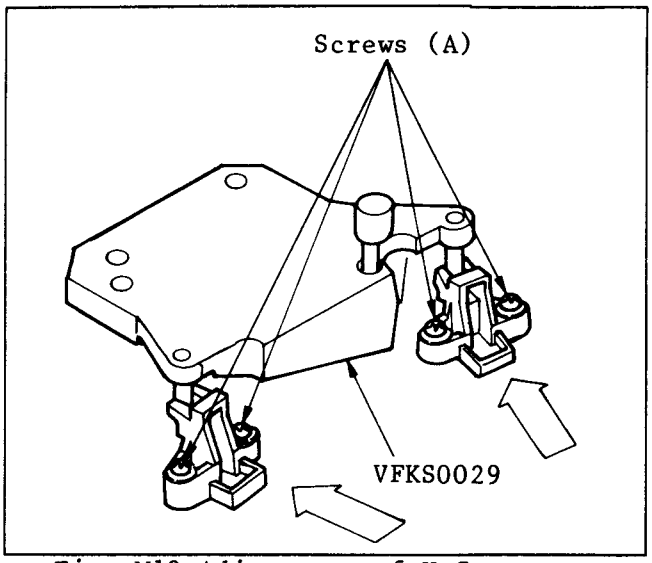


Fig. M13 Adjustment of V-Stoppers

3. Upon completion of the adjustment, simulate loading completion to ensure that posts smoothly fit the V-Stoppers. Then reinstall the D.D. Cylinder Unit.

5. POSITION ADJUSTMENT OF TENSION POST

* Equipment Required:
  Tension Post Adjustment Plate .....(VFKS0002)
  Fine Adjustment Screwdriver .....(VFKS0136)

1. Remove the Top Case and Front Panel.
2. Put the Cassette Holder in down position without a cassette tape, referring to the procedures in 2-3-1 on page 2-3.
3. Push the play button for loading.

4. As soon as loading is completed, disconnect the AC plug and remove the Cassette Up Unit.
5. Loosen the screw slightly so that the tension band bracket can be moved in accordance with the procedure in item 7, but does not move when the screw driver is removed.
6. Place the adjustment plate.
7. Insert the fine adjustment screwdriver into the hole and move the tension band bracket right or left so that the tension post just touches the fixture.
8. Remove the adjustment plate and tighten the screw.
9. Replace the adjustment plate. Confirm that the tension post just touches the fixture.
10. Remove the jumper.

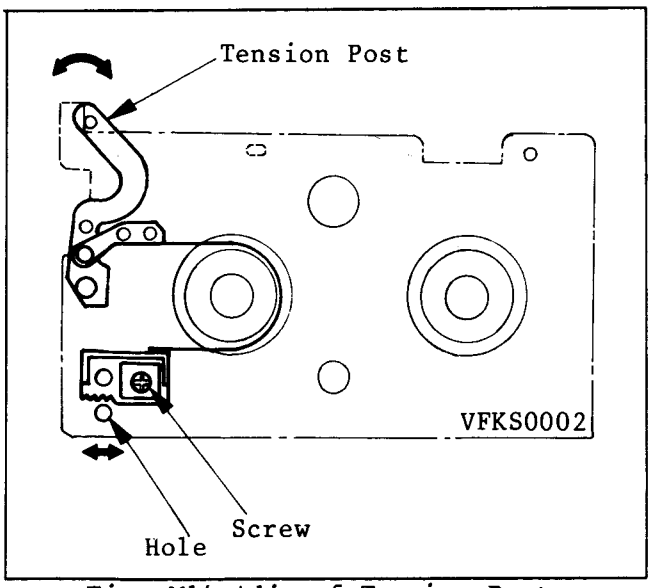


Fig. M14 Adj. of Tension Post

6. MEASUREMENT AND ADJUSTMENT OF BACK TENSION

A: Measurement Procedure

* Equipment Required:
  Back Tension Meter (Tentelometer, Model T2-H7-UM, Purchase Locally)
  VHS Cassette Tape (120 Minute Tape)

* Specification: 25 - 30g

1. Remove the Top Case.
2. Pull the erase head in the direction indicated by the arrow and hold it with adhesive tape.
3. Playback the cassette tape from its beginning and wait until tape running has stabilized. (for approx. 10 to 20 seconds)
4. Insert Tension Meter in tape path and confirm reading.
5. If the reading is out of specification, perform the adjustment procedure.

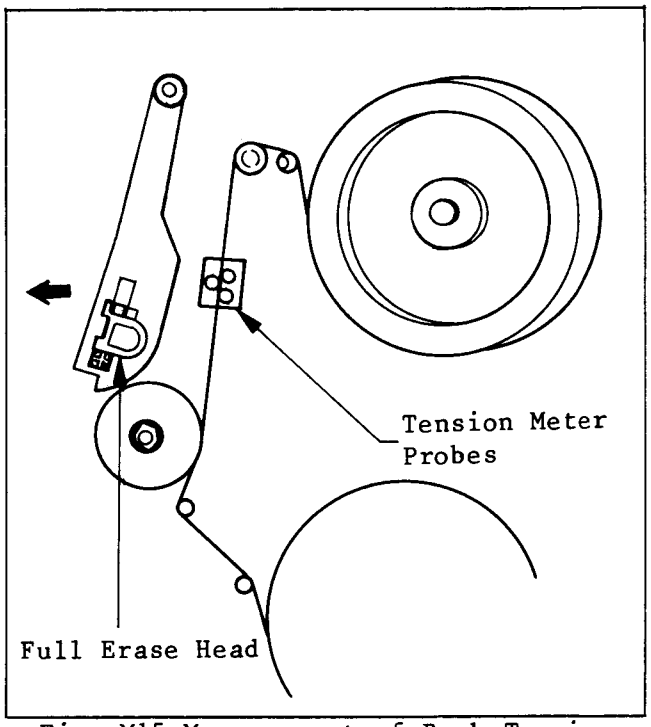


Fig. M15 Measurement of Back Tension

Note:
1. Make sure that the three probes of the meter are all in solid contact with tape, but out of contact with any other parts while measuring.
2. It is recommended that measurements be taken three times as tension meter is very sensitive.

B: Adjustment Procedure

* Equipment Required:
  Fine Adjustment Screwdriver...(VFK0136)

1. Loosen screw (A) and insert the fine adjustment screwdriver into the hole (B).
2. Move the adjustment plate either direction as indicated by the arrow to obtain the specified tension.
   Turn the driver clockwise to loosen tension, counterclockwise to tighten tension.

3. Tighten screw (A) and verify tension with the meter once again.
4. Reinstall the cabinet parts.

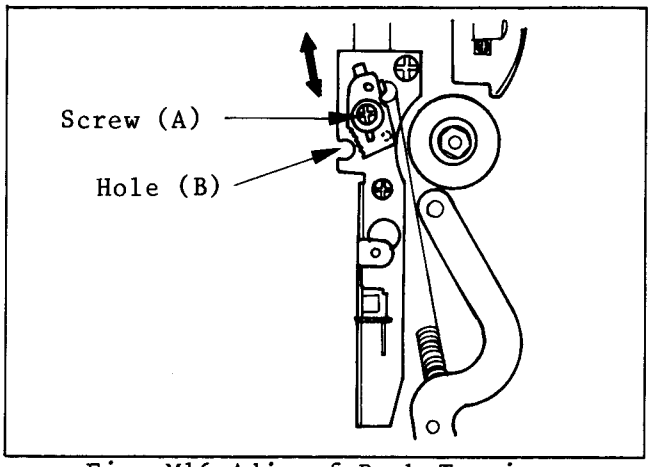


Fig. M16 Adj. of Back Tension

Note:
Upon completion of adjustment, remove the adhesive tape holding the erase head.

7. CONFIRMATION OF BRAKE TORQUE

A : Confirmation Procedure

* Equipment Required:
Dial Torque Gauge.....(VFK0133)
Adaptor for Gauge.....(VFK0134)

1. Remove the Top Case.
2. Put the Cassette Holder in Down position without a casette tape, referring to the procedures in 2-3-1 on page 2-3.
3. Attach the adaptor to the torque gauge and place the deck in STOP mode.
4. Place the torque gauge on the reel table. The weight of gauge should not rest on the reel table.

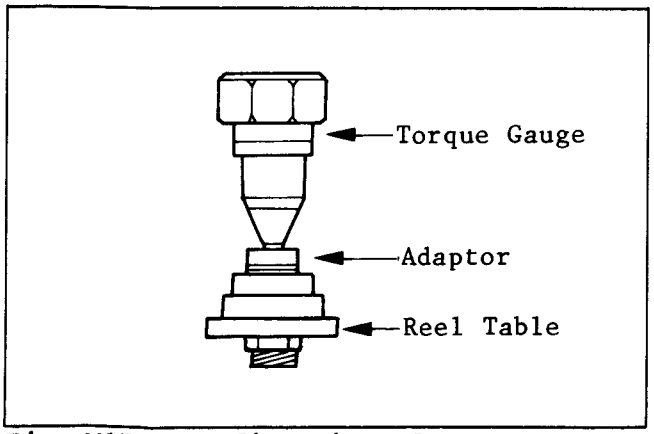
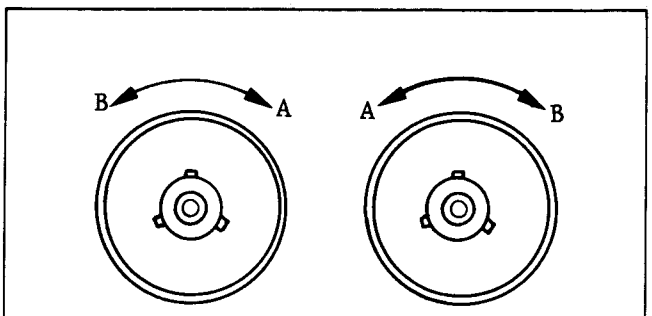


Fig. M17-1 Confirmation of Brake Torque

5. Turn torque gauge in either direction indicated in the Fig. M17-2 and read the gauge when the brake begins slipping.

Note:
If proper brake torque can not be obtained, clean the rotating surface of reel table with a soft cloth and recheck torque before replacing brakes.



	A	B
Takeup	more than 450g.cm	50 - 125 g.cm
Supply		

Fig. M17-2 Confirmation of Brake Torque

8. CONFIRMATION OF TAKEUP TORQUE

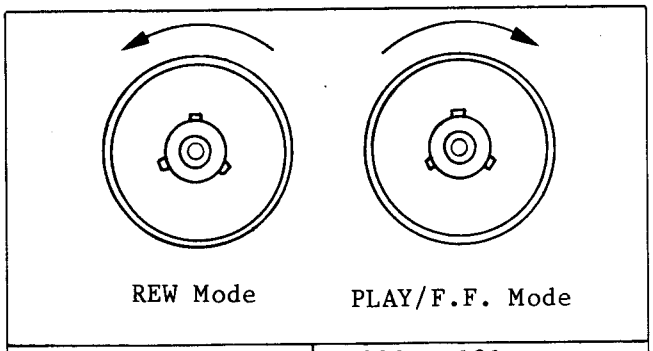
* Equipment Required:
Dial Torque Gauge ..... (VFK0133)
Adaptor for Gauge ..... (VFK0134)

* Specifications:
in PLAY mode ..... 100 - 180g.cm
in F.F. mode ..... more than 400g.cm
in REW mode ..... more than 400g.cm

1. Attach the adaptor to the torque gauge.
2. Remove the Top Case and Bottom plate.
3. Put the Cassette Holder in Down position without a casette tape, referring to the procedures in 2-3-1 on page 2-3.
4. Place the torque gauge on the takeup reel table, push the Play button and read torque on the gauge.
Repeat above procedures in F.F. mode after pushing the F.F. button.

Note:
While measuring, the weight of the gauge should not rest on the reel table.

5. Set the torque gauge on the supply reel table, press the rewind button to check REW mode torque.
6. Remove the jumper



PLAY Mode	100 - 180g.cm
F.F. Mode	more than 400g.cm
REW Mode	more than 400g.cm

Fig. M18 Confirmation of Takeup Torque

9. POSITION ADJUSTMENT OF SAFETY TAB SWITCH

* Equipment Required:
  Cassette Holder Fixture VFKS0004

1. Remove the Top Case,Front Panel, and Cassette Up Unit.
2. Slightly loosen the screws (A) and (B).
3. Place the fixture in place over the reel tables.
4. Adjust the Safety Switch Angle either forward or backward until the Safety Tab Switch closes and Safety Tab Switch just turns ON. Tighten Screws (A) and (B).

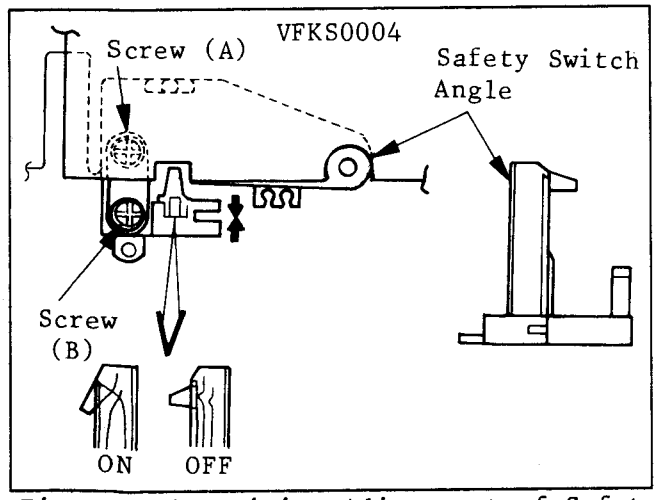


Fig. M19-1 Position Adjustment of Safety Tab Switch-(1)

Note:
1. Don't adjust with upward switch lever.
2. Confirm that the Safety Switch correctly turns ON and OFF using video cassette tapes with and without the Safety Tab.

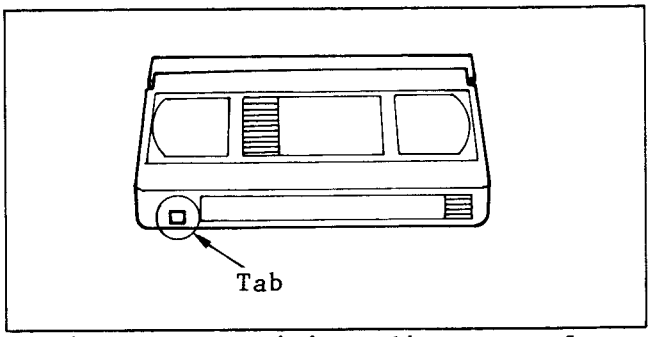


Fig. M19-2 Position Adjustment of Safety Tab Switch-(2)

10. HEIGHT ADJUSTMENT OF REEL TABLES

* Equipment Required:
  Post Adjustment Plate ..... (VFKS0010)
  Reel Table Height Fixture .. (VFKS0009)

* Specification ..... 0 (+- 0.1)mm

1. Remove the Top Case, Front Panel, and Cassette Up Unit.
2. Place the post adjustment plate over the reels, and put the fixture on it. Set the fixture to zero "0" making sure that the scraper of fixture touches the cut-out portion of the plate.

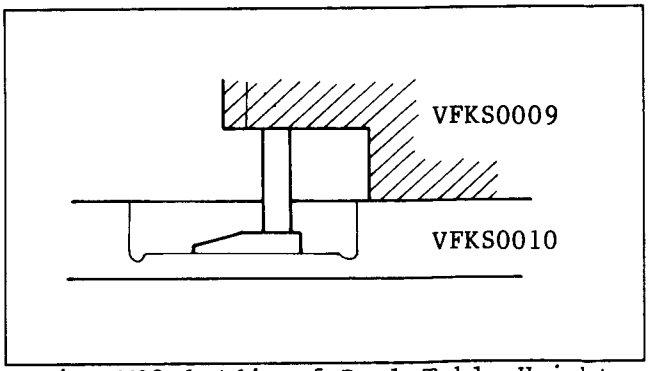


Fig. M20-1 Adj. of Reel Table Height

3. Then measure the top portion of reel table and confirm the difference against the result of the measurement taken in the above step. Do same for the other reel table.

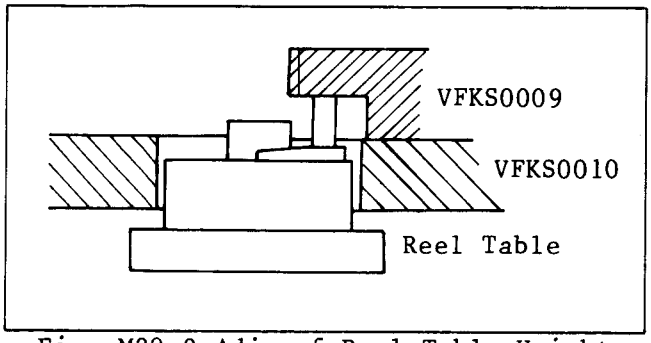


Fig. M20-2 Adj. of Reel Table Height

4. If the difference is more than 0.1mm (higher or lower), adjust the height of reel table to obtain the specified height.

5. For adjustment, change the poly slider washer located under the reel table. (The washer is available in sizes of varying thickness, t=0.13mm, 0.25mm and 0.5mm.)

11. HEIGHT ADJUSTMENT OF TAPE GUIDE POSTS

* Equipment Required:
  Lock Screw Wrench .....(VFKS0032)
  Post Adjustment Plate .....(VFKS0010)
  Reel Table Height Fixture
  .....(VFKS0009)
  Nut Driver .....(Purchase Locally)
  Post Adjustment Screwdriver
  .....(VFK0137)

1. Remove the Top Case, Front Panel and Cassette Up Unit. Place the Adjustment Plate.

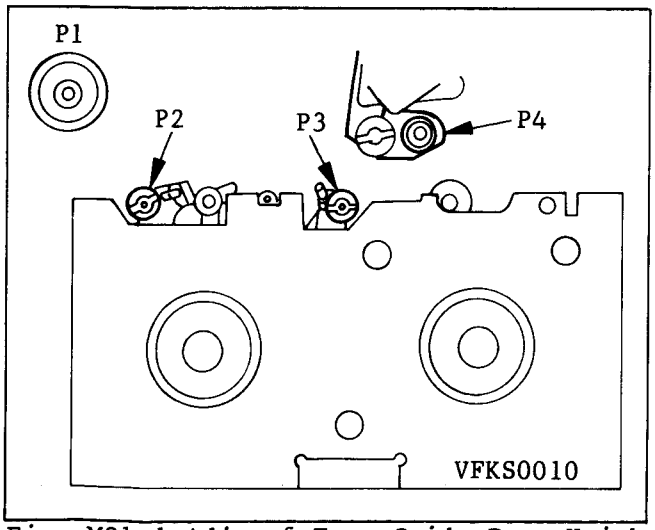


Fig. M21-1 Adj. of Tape Guide Post Height

2. First lower all posts so that the condition of height becomes as shown below.
(Lower end of post and tape guide should be lower than scraper.
Loosen lock screw located at lower portion of posts (P2 & P3) by Lock Screw Wrench, then turn the posts with post adjustment screwdriver.)

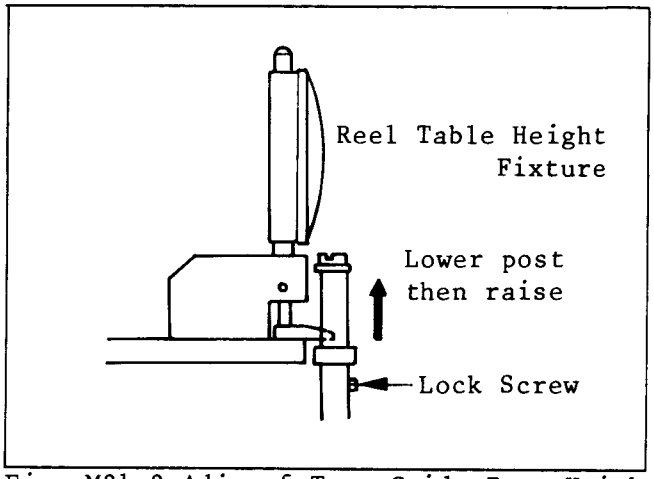


Fig. M21-2 Adj. of Tape Guide Post Height

3. Place the fixture on the Adjustment Plate and fit the scraper to the Adjustment Plate as shown in Fig. M21-2.
(The scraper of the fixture should be fully lowered till it touches plate.)
4. Set the fixture to zero "0" and slowly raise the post until it just touches the scraper. When the scraper touches the post,it should fit as shown below in Fig. M21-3 (b). For adjustment of P1 and P4, use the nut driver.
(The Post cap on P4 can be removed by turning counterclockwise.)
For adjustment of P2 and P3, use the post adjustment screwdriver.

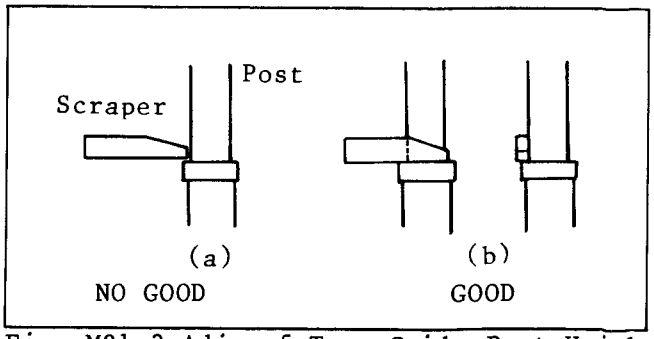


Fig. M21-3 Adj. of Tape Guide Post Height

Note:

Upon Completion of adjustment, tighten lock screws on the P2 and P3 by Lock Screw Wrench and also install the post cap on post 4. When the post cap on P4 is reinstalled, the position of it should be as shown below when viewed from the direction indicated by the arrow.

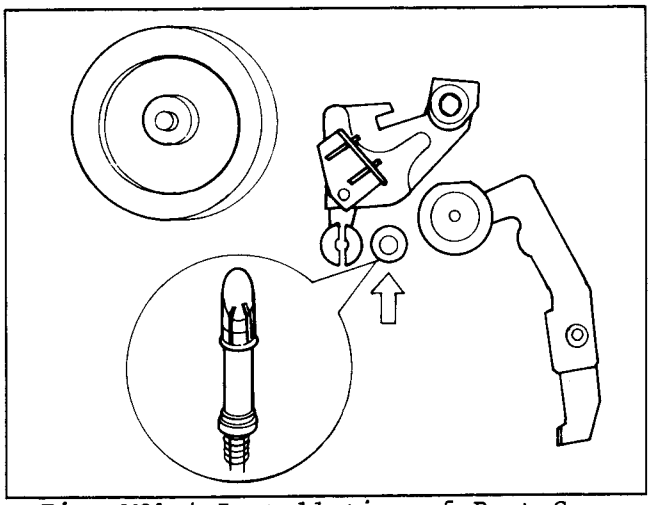


Fig. M21-4 Installation of Post Cap

12. HEIGHT ADJUSTMENT OF P5 ARM UNIT

Note :

1. The adjustment should be performed after the adjustment of P4 as the spec. is based on height of P4.
2. The adjustment should be performed in the loading completion mode.

Equipment Required :

Post Adjustment Plate VFKS0010
Reel Table Height Fixture VFKS0009
Nut Driver (5.5mm) .. Purchase Locally
Specification : 0 (+- 0.05) mm

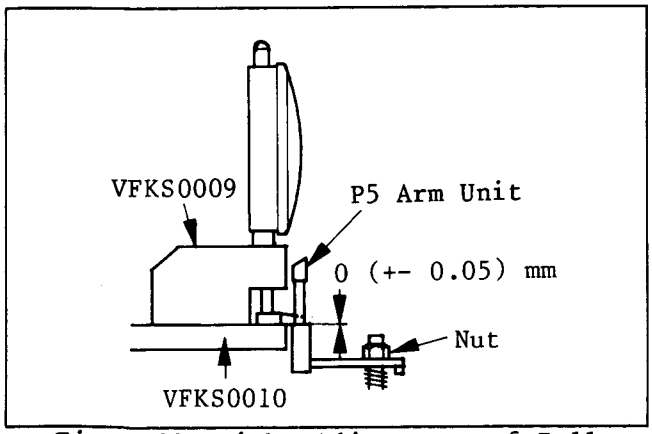


Fig. M22 Height Adjustment of Pull Out Post

1. Put the Cassette Holder in down position without a cassette tape, referring to the procedures in 2-3-1 on page 2-3.
2. Turn power switch ON, push the play button for loading.
   Then disconnect the AC plug.
3. First raise the P5 Arm Unit a little higher than the Post Adjustment Plate by tuning the nut counterclockwise
4. Place the post adjustment plate, put the reel table height fixture on the plate and set height fixture to zero "0" with condition the foot touches on the height adjustment plate.
5. Slightly lower the post by turning the nut clockwise. Place the foot to the post as shown in Fig. M22.
6. Then slowly turn the nut till the fixture reads the specified height.
7. Reinstall the Cassette Up Unit and remove the jumper and plug in for unloading.

13. TAPE INTERCHANGEABILITY ADJUSTMENT (FINAL ADJUSTMENT)

Note:

To perform these adjustment/confirmation procedures, make sure that the tracking control is set in the detent (fixed) position.

* Equipment Required:

Alignment Tape VFMS0001H6
Post Adjustment
Screwdriver VFK0137
H-Position Adjustment
Screwdriver VFKS0003
Lock. Screw Wrench VFKS0032
Nut Driver (5.5mm) ... Purchase Locally
Oscilloscope

13-A. CONFIRMATION OF TAPE TRAVEL

1. Playback a cassette tape and confirm that the tape travels without curling at the edges of the tape.

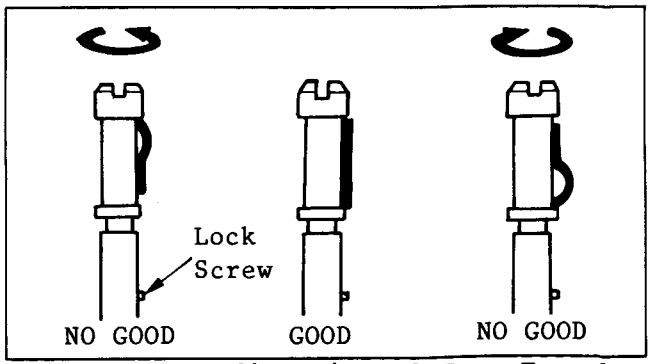


Fig. M23. Confirmation of Tape Travel

2. If curling is apparent, adjust the height of posts by turning the top of post with the post adjustment screwdriver. (for P2 & P3)

Note:
Before turning P2 and P3, slightly loosen a lock screw by the Lock Screw Wrench.

13-B. CONFIRMATION OF A/C HEAD HEIGHT

This confirmation is required when the A/C Head was replaced and for preliminary height adjustment. For final adjustments, perform item 13-C,13-D.

1. Looking at the lower edge of the control head with the tape running, ensure that the lower edge of the tape runs along the lower edge of the control head. If it doesn't, slightly turn the nut (A) in either direction to correct. Clockwise to lower the head and counterclockwise to raise it.

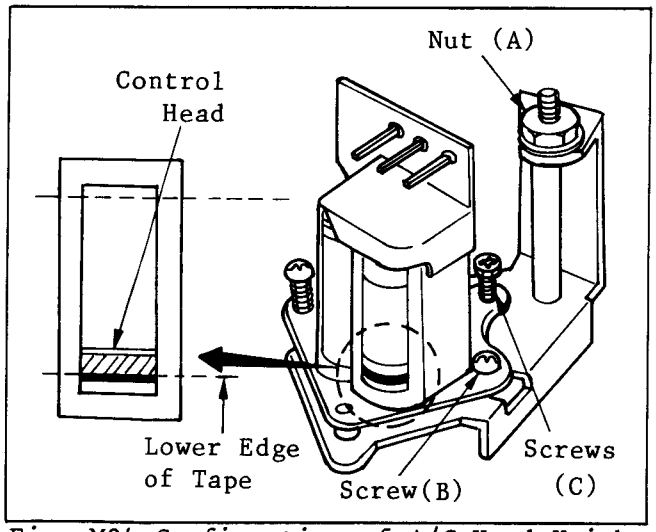


Fig. M24 Confirmation of A/C Head Height

13-C. CONFIRMATION OF TILT OF A/C HEAD

This procedure should be performed after the height adjustment of P4.

1. Playback the tape and confirm that the tape runs between lower and top limits of P4 post. Also confirm that the tape is running smoothly.

2. If adjustment is required, turn Screw (C) clockwise until curling is apparent at lower edge of P4. Then turn screw (C) counterclockwise until the curling is smoothed out.

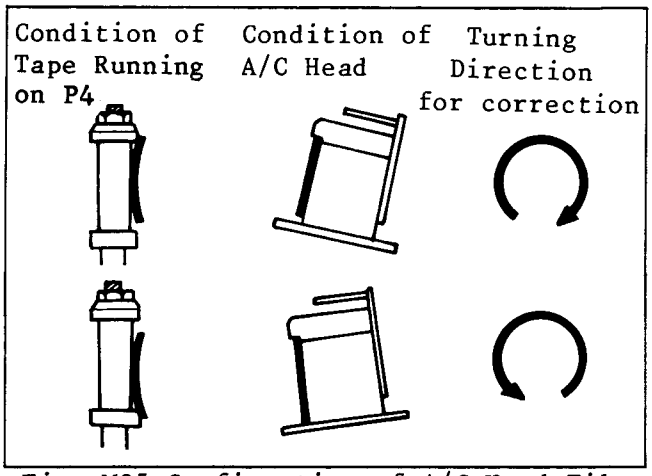


Fig. M25 Confirmation of A/C Head Tilt

13-D. HEIGHT AND AZIMUTH ADJUSTMENT OF A/C HEAD

A. Adjustment for PV-1525

1. Connect the oscilloscope to the audio output jack on the rear of the deck.
2. Playback the monoscope portion (6kHz, Mono) of the alignment tape, VFMS0001H6.
3. Adjust the screw (B) on the head base so that the output level becomes maximum.

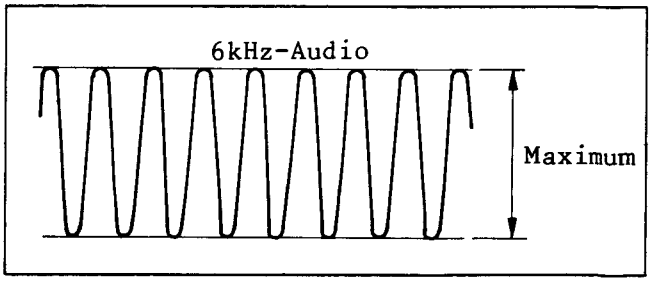


Fig. M26-1 Adj. of A/C Head Height

4. Readjust nut (A) for maximum output.

B. Adjustment for PV-1530

1. Connect the oscilloscope CH1 to the the Audio Output (Left) and CH2 to the Audio Output (Right) on the rear panel.
2. Playback the color bar portion (3kHz, Stereo) of the alignment tape (VFMS0001H6).
3. Adjust the screw (B) so that the CH2 Audio Output (Right) is maximized.

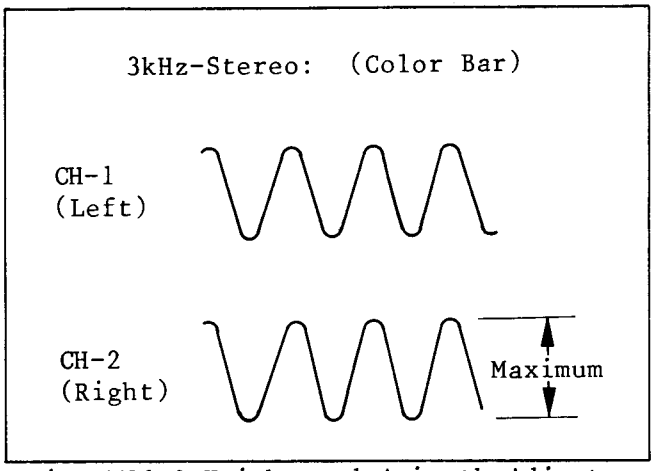


Fig. M26-2 Height and Azimuth Adjustment of A/C Head

4. Then, adjust the nut (A) so that the CH2 Audio Output (Right) is Maximized

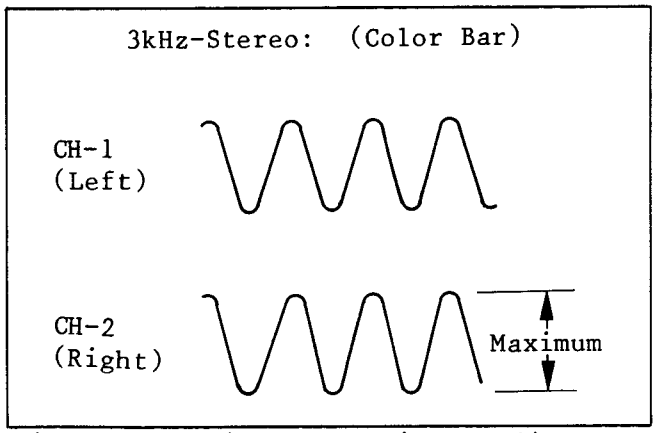


Fig. M26-3 Height and Azimuth Adjustment of A/C Head

5. Playback the monoscope portion (6kHz, Monaural) of the alignment tape (VFMS0001H6).
6. Then, adjust screw (B) so that the phases of both channels match as shown in Fig. M26-4.

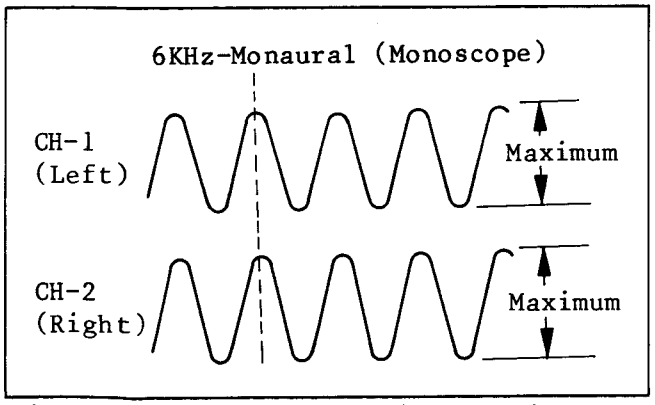


Fig. M26-4 Height and Azimuth Adjustment of A/C Head

Note :
During this adjustment, the audio output level should be maximum.

13-E. HORIZONTAL POSITION ADJUSTMENT OF A/C HEAD

1. Set the tracking control to the detent (fixed) point. Connect the oscilloscope CH1 to TP3005 on the Signal Process Section and CH2 to TP2003 on the Servo Section.

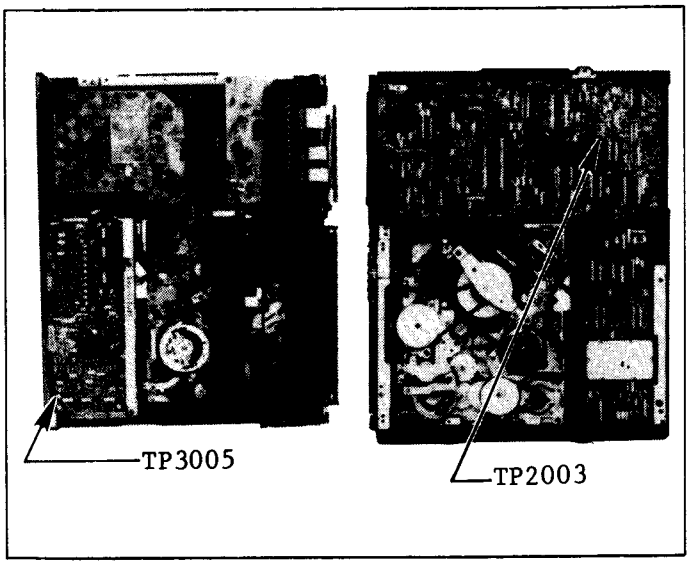


Fig. M27 Horizontal Position Adjustment of A/C Head-(1)

2. Playback the monoscope portion of the alignment tape VFMS0001H6 and note the envelope which corresponds to the high period of the Head Switching Signal at TP2003 as shown in Fig. M28
Once note, use only this envelope for the subsequent adjustments.
3. Slowly turn the Adjustment Nut so that the envelope is at maximum. Before finding the center of the maximum period of envelope, rotate the adjustment nut back and forth slightly to confirm the limits on either side of the maximum period. Next determine the center point.
4. Confirmation of the correct adjustment can be made by turning the tracking control to the right and the left to check the symmetry of the envelope.
If the envelope changes symmetrically, the adjustment has been done correctly.

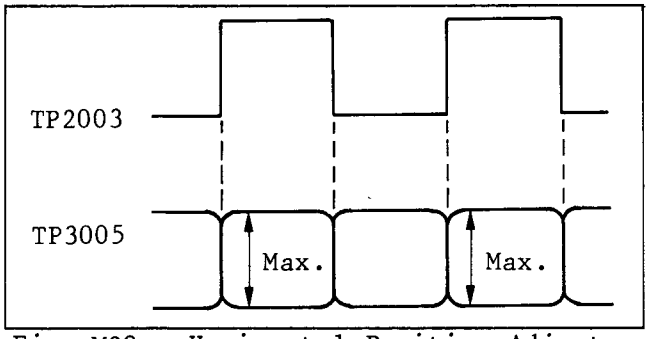


Fig. M28 Horizontal Position Adjustment of A/C Head-(2)

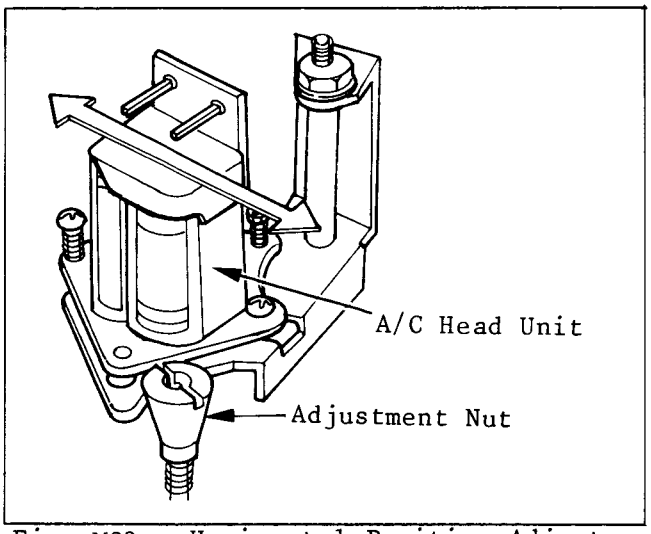


Fig. M29 Horizontal Position Adjustment of A/C Head-(3)

13-F. CONFIRMATION/ADJUSTMENT OF ENVELOPE OUTPUT

1. Set the tracking control in the detent (fixed) position. Connect the oscilloscope to the TP3005 on Signal Process Section. Use TP3006 as a trigger.
2. Playback the monoscope portion of the alignment tape VFMS0001H6 and adjust the height of posts P2 and P3 watching the scope display so that the envelope becomes as flat as possible. (V1/V-max$\geqq$ 0.7, V2/V-max$\geqq$ 0.8) If adjustment is required, turn top of post with post adjustment screwdriver. For adjustment of P2 & P3, refer to step 2 of item 13-A.

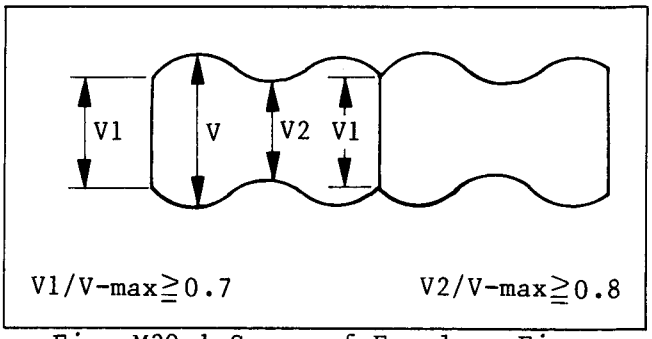


Fig. M30-1 Spec. of Envelope Figure

3. When the scope display is as follows, adjust the height of P2 so that the waveform looks like Fig. M30-4.

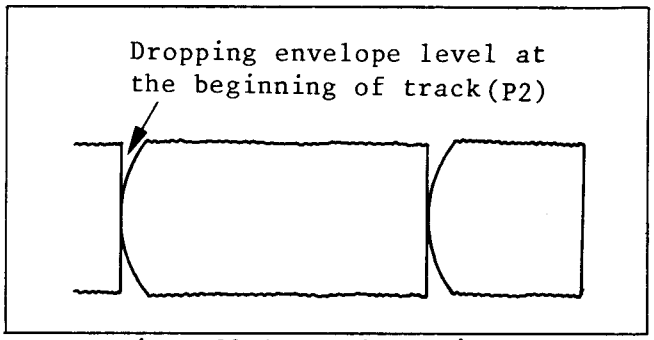


Fig. M30-2 Envelope Figure

4. When the scope display is as follows, adjust the height of P3 so that the waveform looks like Fig. M30-4.

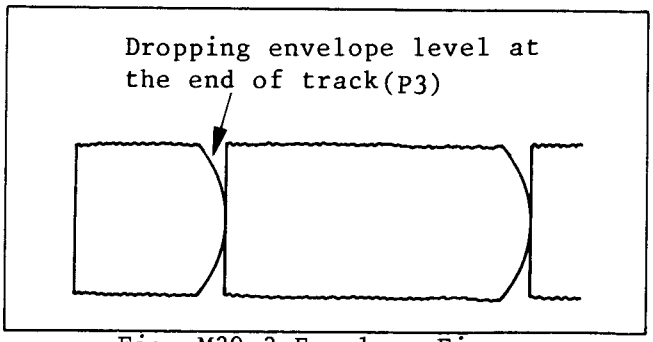


Fig. M30-3 Envelope Figure

5. The scope display should appear as shown below when P2 and P3 are adjusted correctly.

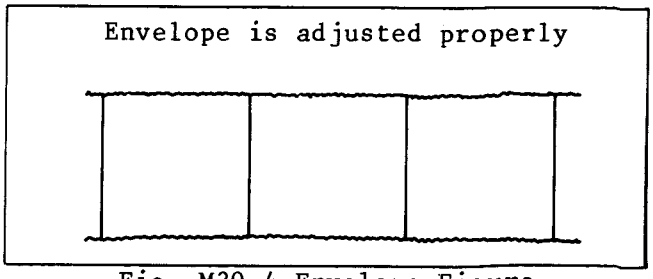


Fig. M30-4 Envelope Figure

Note :
Upon Completion of adjustment of P2 and P3, confirm the Horizontal Position by turning the tracking control clockwise or counterclockwise.
And if required, perform "Horizontal Position Adjustment of A/C Head".

14. ADJUSTMENT OF FG HEAD GAP

* Equipment Required:
  Fine Adjustment Screwdriver ... VFK0136
* Specification: 0.16 (+- 0.02) mm

1. Remove 2 screws (A) on the thrust Holder, then remove the Capstan Pulley Unit, 5 screws (B) and Capstan Stator Unit.

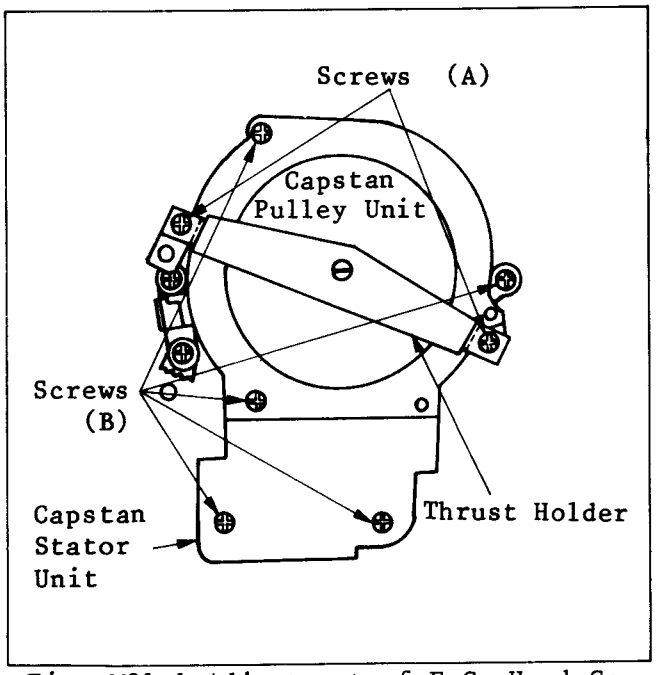


Fig. M31-1 Adjustment of F.G. Head Gap

2. Slightly loosen the 2 screws (C) and set the fine adjustment screwdriver into the hole (D).
Turn screwdriver clockwise until the FG head touches the rotor and just slightly turn it counterclockwise so the gap becomes as specified.

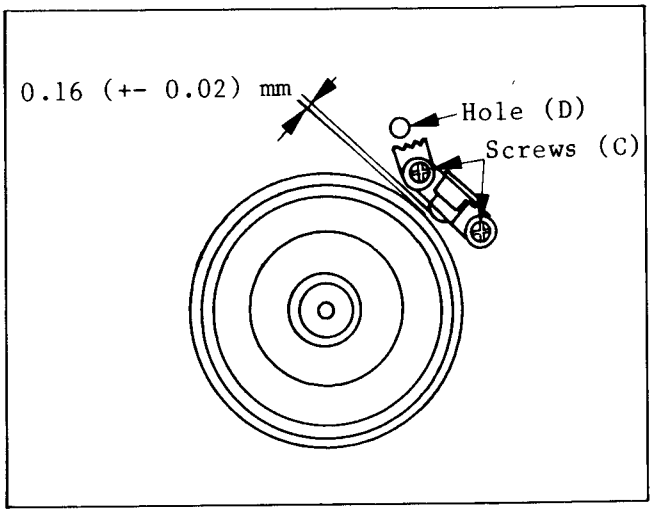


Fig. M31-2 Adjustment of F.G. Head Gap

Note:
1. Do not touch the outside circumference surface of the rotor with any tool, and keep any magnetizable material away from the rotor magnet.
2. When reinstalling the Capstan Stator Unit, the circumference of the hole in the Capstan Stator Unit must be Centered with the circumference of the Rotor Boss.

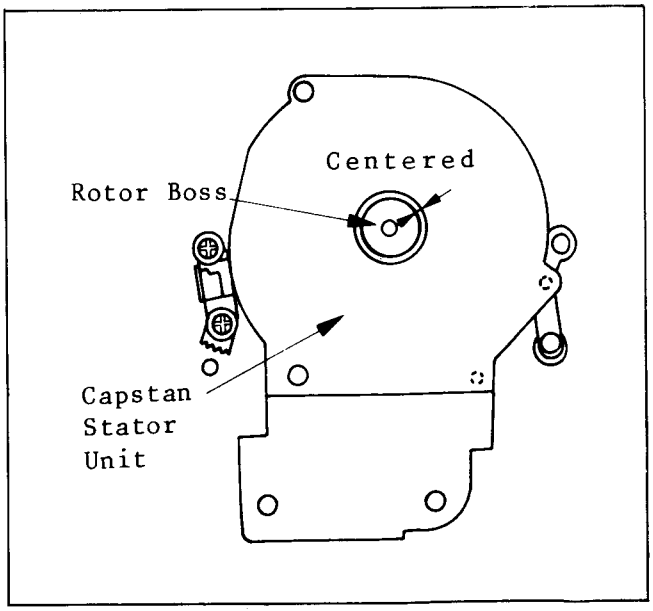


Fig. M31-3 Adjustment of F.G. Head Gap

15. CONFIRMATION/ADJUSTMENT OF THRUST GAP

* Equipment Required:
  Reel Table Height Fixture VFKS0009
* Specification: 0.05 - 0.09mm

1. Place the Unit upside down and place the height fixture on the thrust Holder. Set the fixture to zero "0".
2. Next, push the capstan shaft by your finger, and confirm the thrust gap.
3. If the gap is out of specification, then adjust the thrust screw by turning it clockwise or counterclockwise.

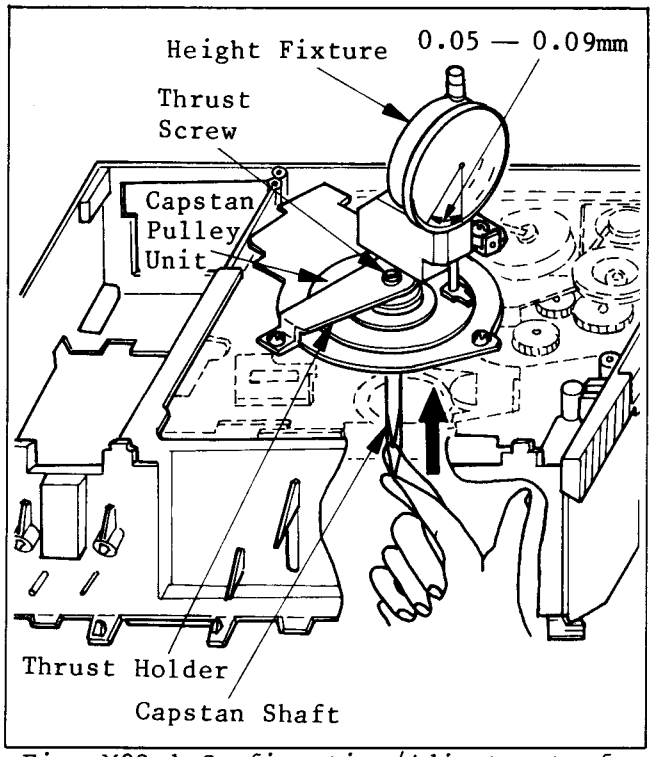


Fig. M32-1 Confirmation/Adjustment of Thrust Gap

Note:
Upon completion of above procedure, adjust the capstan seal so that this seal is out of contact with the pressure roller and capstan holder. The specification of clearance is approx. 0.5 (+- 0.2)mm.

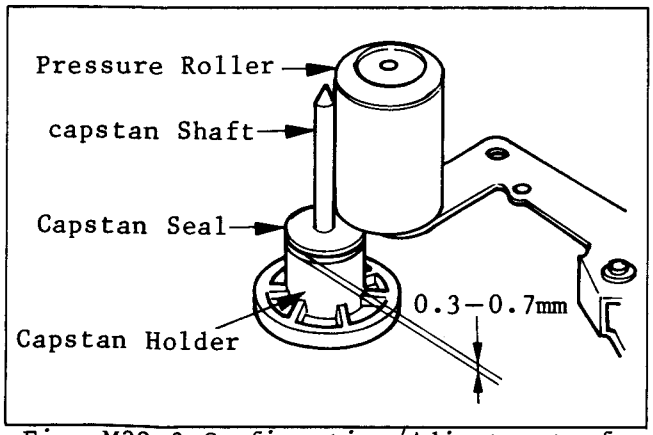


Fig. M32-2 Confirmation/Adjustment of Thrust Gap

16. ADJUSTMENT OF CAM GEAR AND MODE SELECT SWITCH

General Condition:

The mechanism of this model is mostly engaged to the electrical circuit, System Control Circuit, through the mode select switch. Therefore the relation between the mode switch and the cam gear determines all further mechanical movement of the mechanical parts such as levers, gears, rollers and so on. If the adjustment of this item is performed improperly, the deck will be unloaded or automatically stopped. It will also result in damage to mechanical and electrical parts.

Note:
Step 7 of this procedure describes the necessary adjustment if the mode select switch is replaced.

Adjustment Procedures:

This procedure **starts** with the condition that the Cassette Lock Unit, Kick Base Unit, Sector Gear, Cam Gear and Driving Gear have been removed.

1. Turn loading gear clockwise until post 2 and 3 are fully unloaded. The small projection on the loading gear will be pointing up in the unloaded condition.

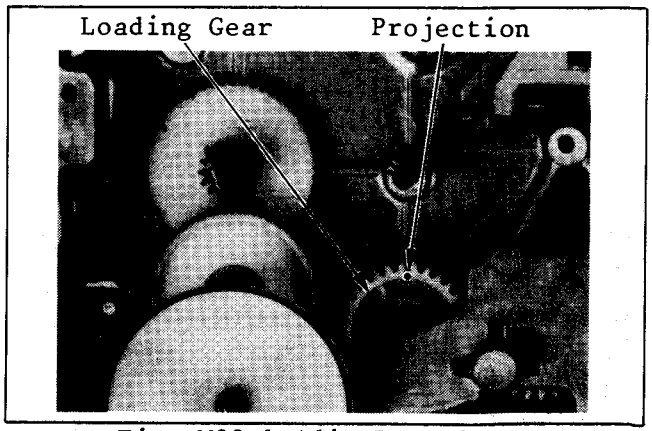


Fig. M33-1 Adj. Procedure

2. Install the driving gear so that the hole on the driving gear aligns with the projection on the loading gear. Ensure that the loading gear is still in the fully unloaded condition. Install the C-Ring to mount driving gear.

3. Slowly slide the main rod so that the hole (B) of the main rod meets the hole (C) of chassis.
This will simulate stop mode (unloading completion) of main rod and mode select switch.

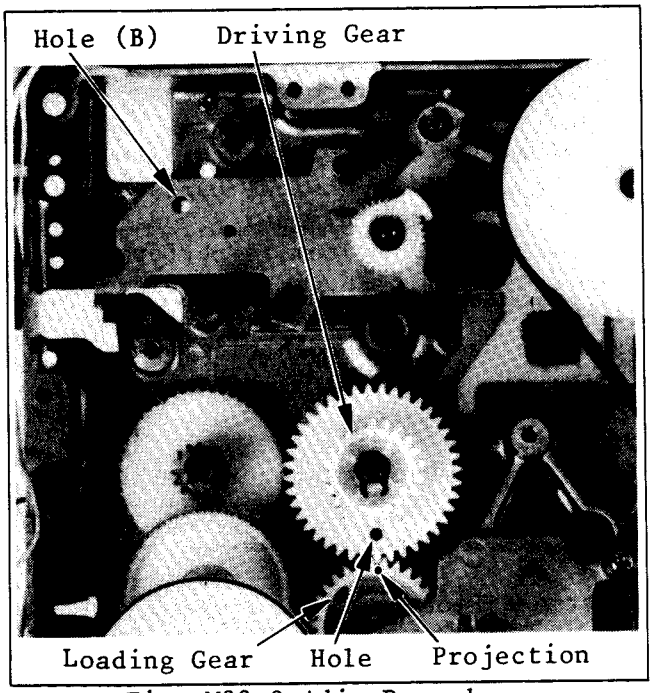


Fig. M33-2 Adj. Procedure

4. Insert the cam gear with the simple slot side showing so that the hole (A) on the gear meets the hole (B) on the main rod and hole (C) on the chasis.
To facilitate matching the three holes, use the small hex, wrench or a metal pin. Then install the C-Ring to mount cam gear.

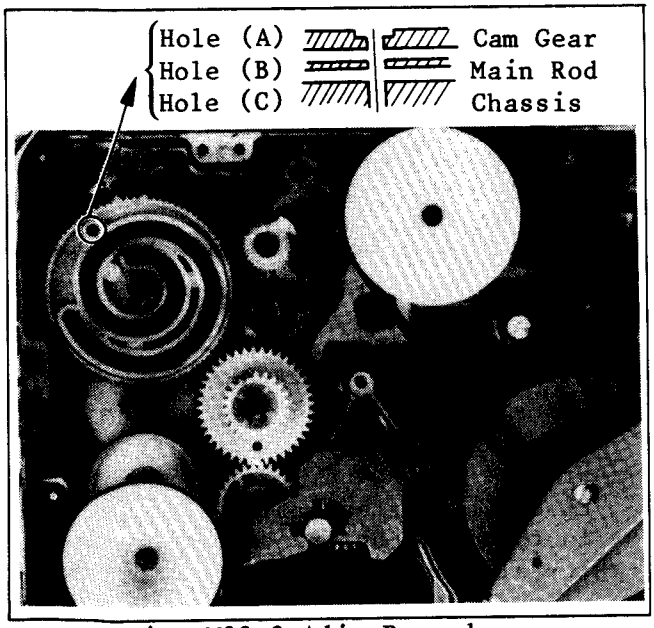


Fig. M33-3 Adj. Procedure

5. Install the sector gear so that the pin on the sector gear meets the inner slot of the cam gear as shown in Fig. M33-4. Also install C-Ring in order to mount sector gear.

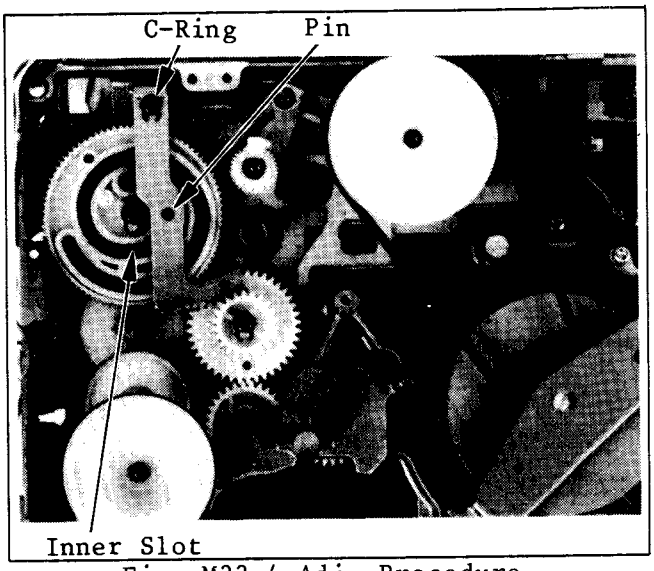


Fig. M33-4 Adj. Procedure

6. Completed adjustments should appear as illustrated below.

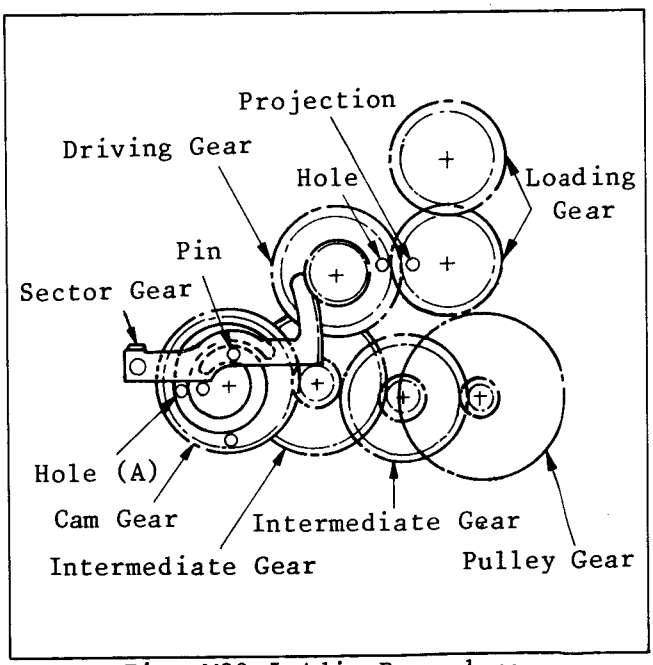


Fig. M33-5 Adj. Procedure

7. (Adjustment of Mode Select Switch)
Keep the main rod in the unloading completion condition so that the hole (A) cam gear, hole (B) of main rod and the hole of chassis are aligned.
Upon completion, ensure that the movement of the deck is normal.

Place the Mode Select Switch so that the movable projection (A) on Mode Select Switch fits around the tab on the main rod, enclosing it. Slowly slide the Mode Select Switch sideways until the V-notches in movable Projection and the V-notch on the Mode Select Switch are aligned. Tighten two screws (C) to secure alignment.

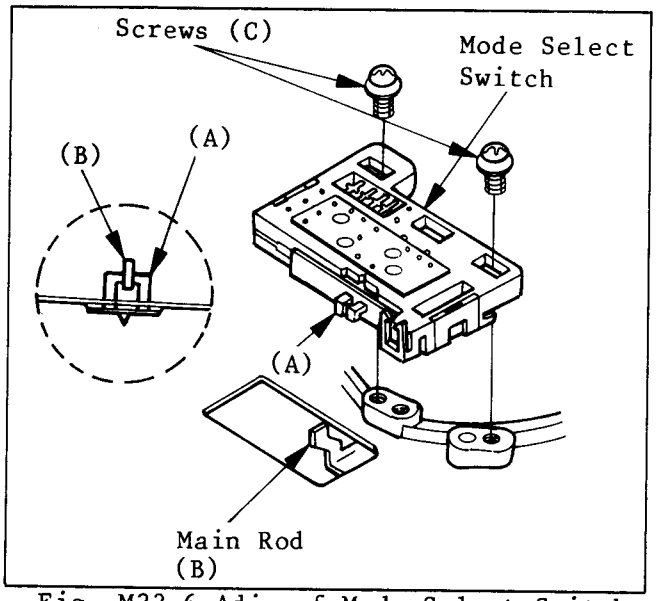


Fig. M33-6 Adj. of Mode Select Switch

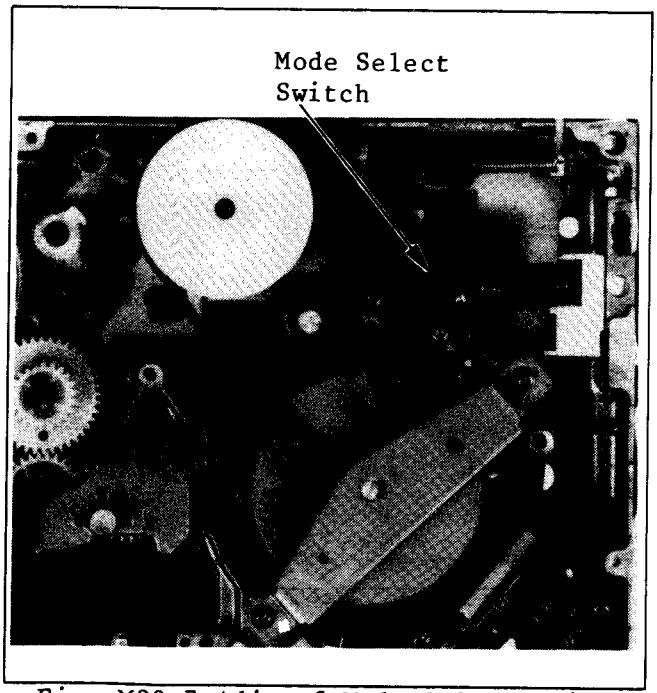


Fig. M33-7 Adj. of Mode Select Switch

8. Turn the Pulley gear in both directions to confirm smooth movement of this mechanism.
9. Install the Cassette Lock Unit and Kick Base Unit.

17. ADJUSTMENT OF CASSETTE UP GEARS.

1. Remove the Cassette Up Unit according to removal procedure of Cassette Up Unit.
2. Set Cassette Up Unit in full cassette Up condition.

Full Cassette Up Condition :

(a). Turn the Cassette Loading Motor by hand to the Cassette Up Condition.

(b). Then remove the worm wheel stopper. Confirm that the wiper gear arm Unit (R) is on the full left side of its arc and cassette holder is in full up condition as shown in Fig. M34.

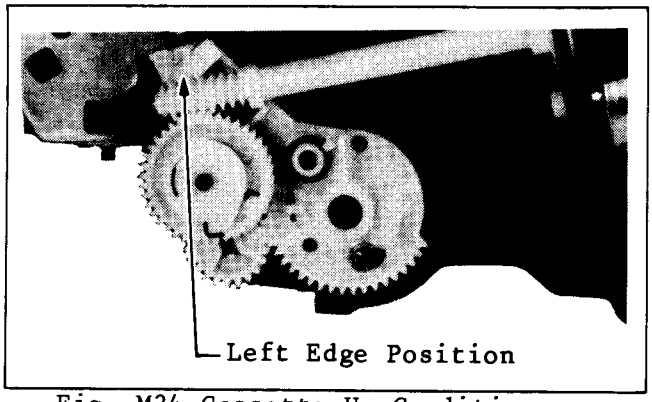


Fig. M34 Cassette Up Condition

Note :

All the following procedures for adjustment and part replacement should be performed with Cassette UP Unit in full Cassette Up Condition.

17-A RIGHT SIDE GEARS

This procedure starts with the condition that the switch Angle Unit, worm wheel unit, wiper Gear arm Unit (R) and Main Shaft Gear(R) have been removed.

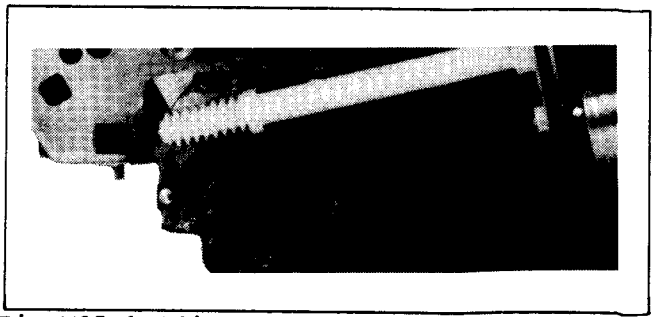


Fig.M35-1 Adjustment of Cassette Up Gears-(1)

1. Install the Main shaft Gear (R).

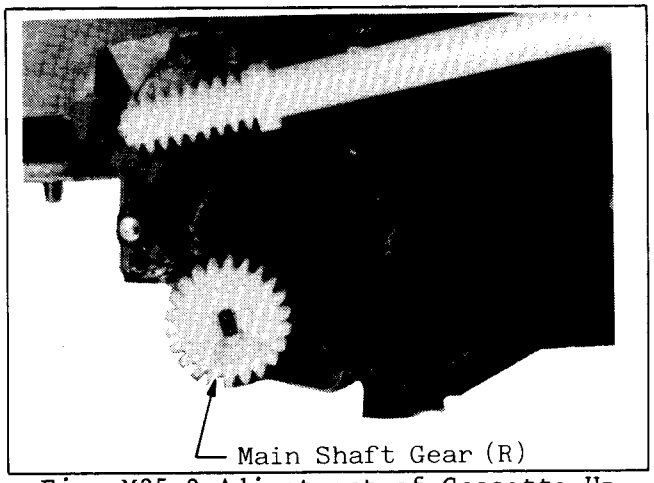


Fig. M35-2 Adjustment of Cassette Up Gears-(2)

2. Install the wiper gear arm (R) unit so that the projection (A) on the wiper gear arm (R) unit and the Projection (B) on the Main shaft Gear (R) are aligned. Pin of Cassette Holder-R should fit into the slot of wiper gear arm (R).

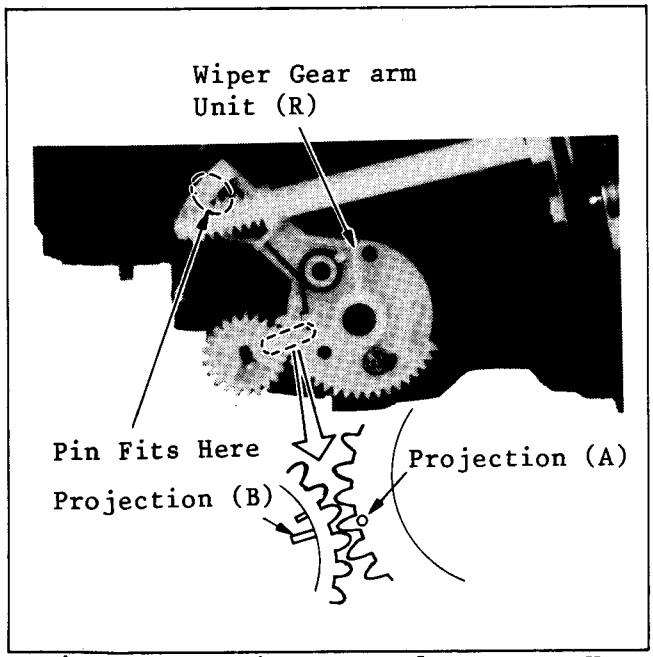


Fig. M35-3 Adjustment of Cassette Up Gears-(3)

3. Install the worm wheel unit so that the tooth (E) beside the projection (C) on the worm wheel unit and the valley (F) on the Main Shaft Gear opposite the shorter projection (D) on the Main shaft Gear should be aligned as shown in Fig.35-4.

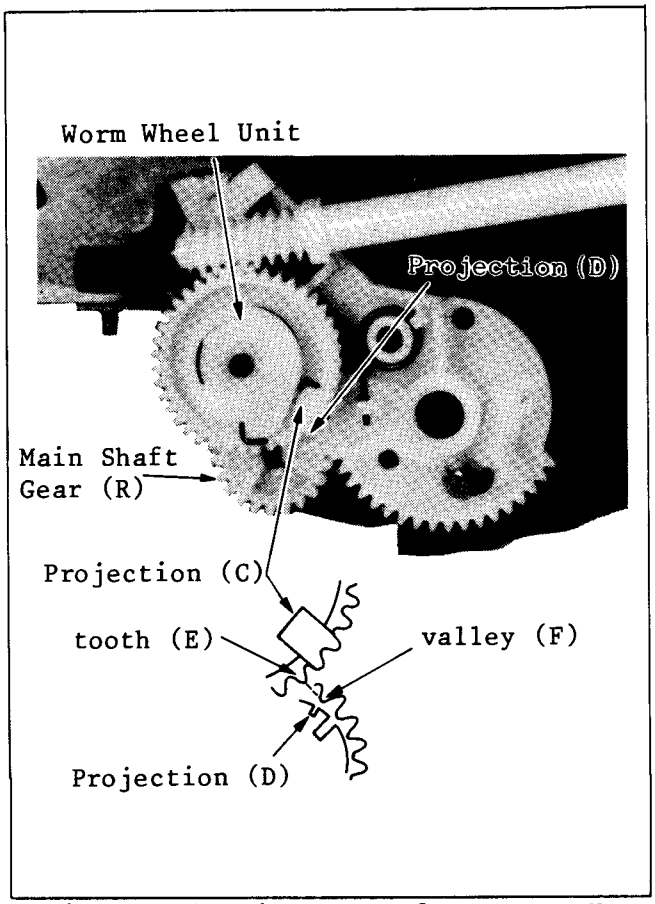


Fig. M35-4 Adjustment of Cassette Up Gears-(4)

4. Install worm wheel stopper unit and support angle with 3 screws (A) as shown in Fig. M33-5.

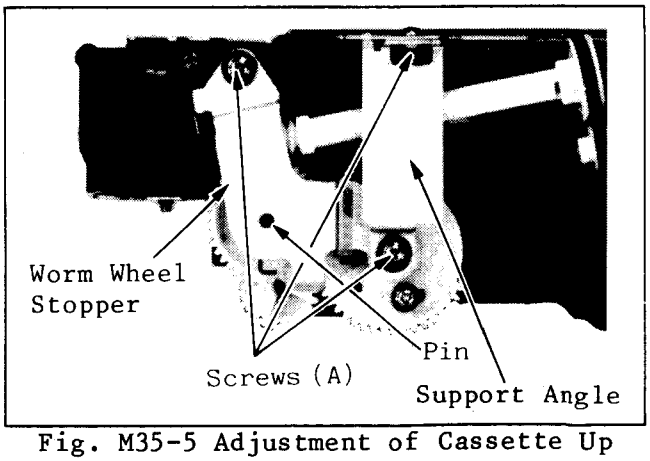


Fig. M35-5 Adjustment of Cassette Up Gears-(5)

5. Install the Switch Angle Unit with screw and 3 Locking tabs as shown below.

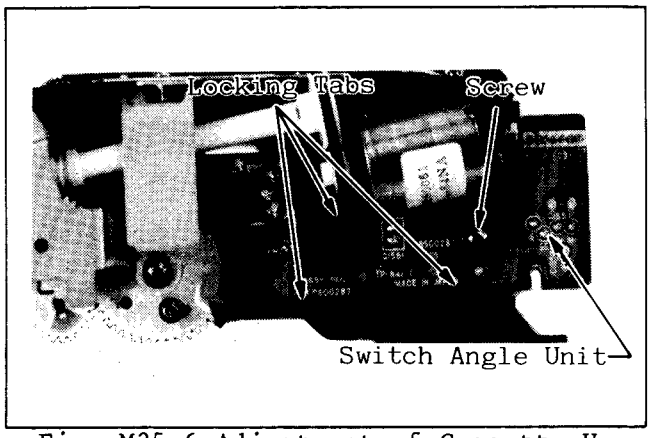


Fig. M35-6 Adjustment of Cassette Up Gears-(6)

17-B. LEFT SIDE GEARS

This procedure starts with the condition that the Cassette Compartment Opener Lever, wiper Gear (L) and Main Shaft (L) Unit have been removed.

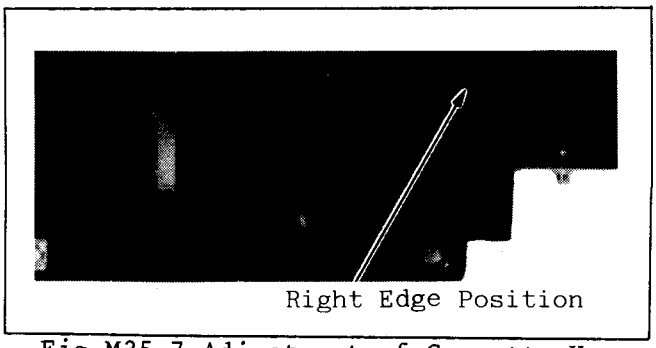


Fig.M35-7 Adjustment of Cassette Up Gears-(7)

1. Install the Main shaft Gear (L) Unit.

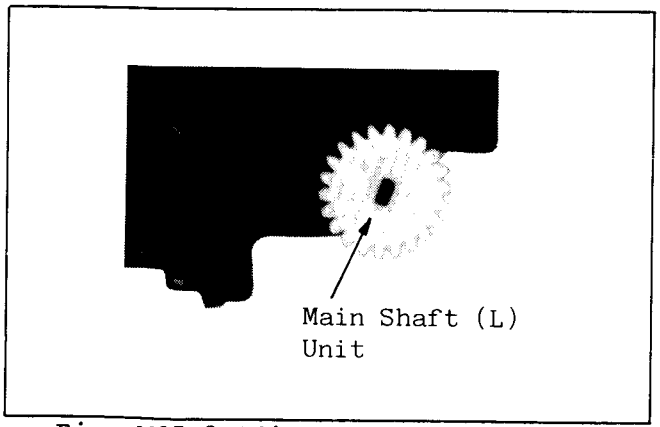


Fig. M35-8 Adjustment of Cassette UP Gears-(8)

2. Install the wiper Gear (L) unit so that the projection (E) on the wiper Gear (L) unit meets the projection (F) on the Main Shaft Gear (L) Unit. At that time, Pin of Cassette holder-L should fit into the slot of wiper Gear (L). Then install the screw (B).

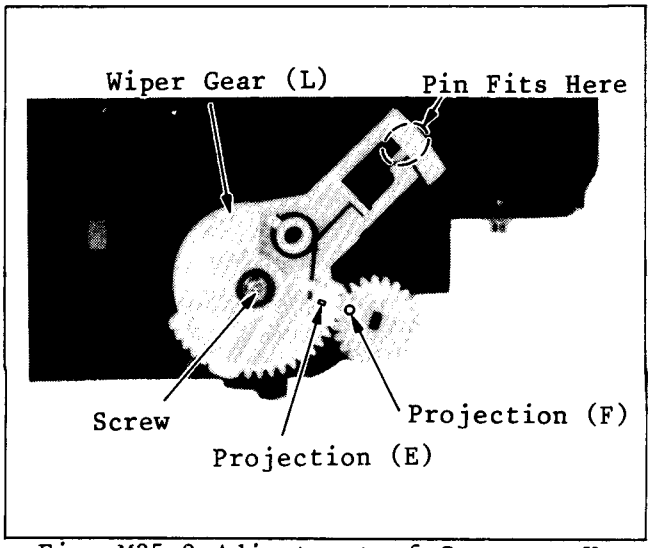


Fig. M35-9 Adjustment of Cassette Up Gears-(9)

3. Install the cassette compartment opener Lever as shown in Fig. M35-10. Ensure a portion of opener lever (G) slides into the opening beside Cassette door. Snap Cassette Compartment opener lever into place over its pin. Pull down on (H) to ensure Cassette door opens.

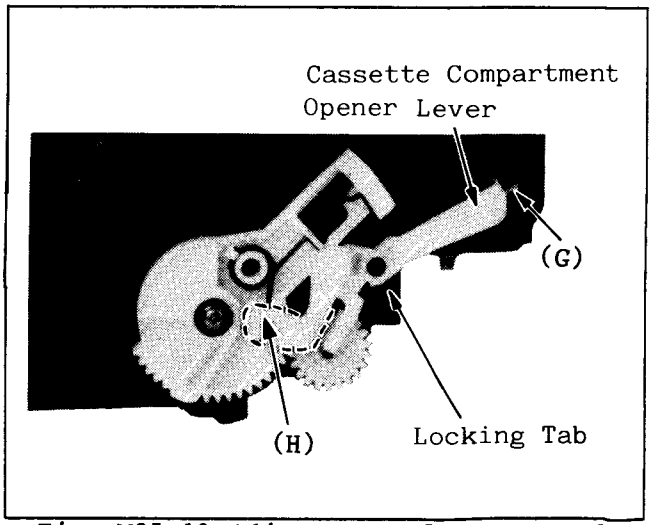


Fig. M35-10 Adjustment of Cassette Up Gears-(10)

18. ADJUSTMENT OF CASSETTE UP/DOWN SWITCH

* Equipment Required :
  Fine Adjustment Screwdriver.....VFKS0136

1. Confirm that the Cassette Up Unit is in the full cassette up condition and then remove the Cassette Up Unit referring to removal procedure of Cassette Up Unit.
2. Confirm that the projection (F) on the wiper Arm Gear (R) Unit meets the apex of triangle of Cassette In Switch as shown in Fig. M35-11.
3. Slightly loosen the Screw (A) and insert the adjustment screwdriver into the hole (B).
4. Turn the adjustment screwdriver until projection (G) on the wiper Arm Gear (R) Unit meets the triangle of Cassette Up/Down Switch as shown in Fig. M35-11. Then confirm the Cassette Up/Down Switch turns ON and tighten screw (A).
5. Connect the connector P1551 on the connection C.B.A. Insert the cassette tape, then confirm cassette up and cassette down movement.

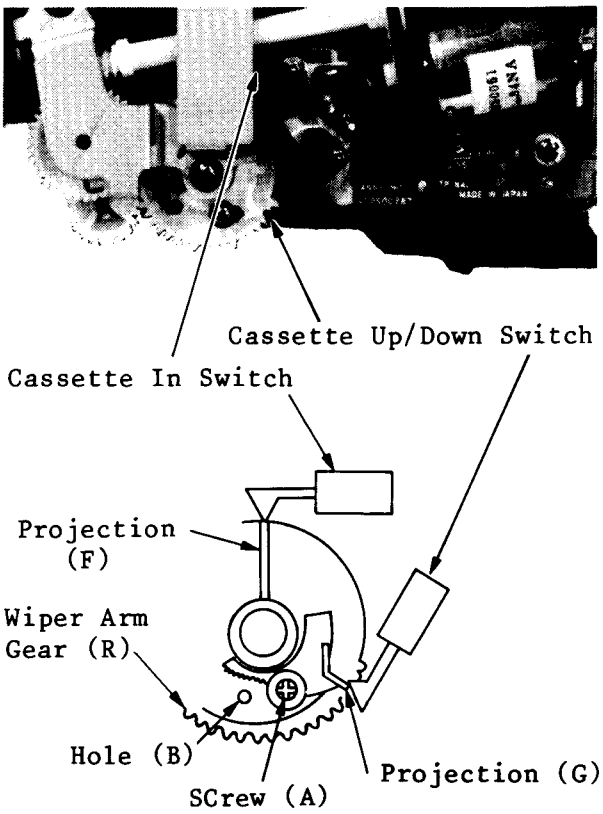
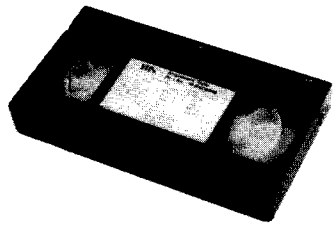


Fig. M35-11 Adjustment of Cassette Up Gears

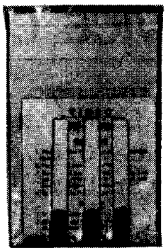
Servicing Fixtures & Tools

VFMS0001H6 **VHF Alignment Tape**

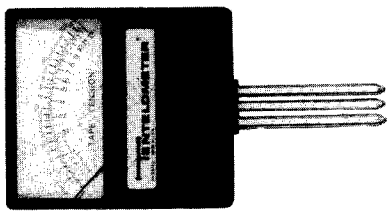


VFK0137 **Post Adjustment Screwdriver**

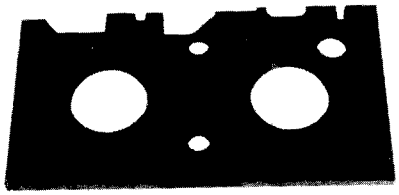
VFK27 **Head Cleaning Stick**



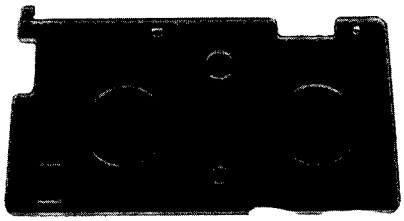
Back Tension Meter
(Tentelometer, Made in U.S.A.)



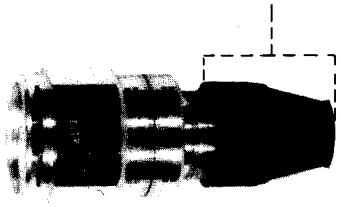
VFKS0010 **Post Adjustment Plate**



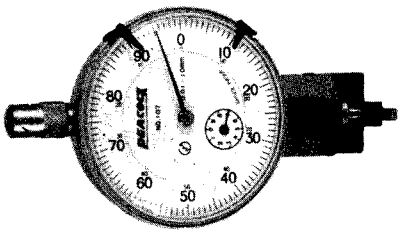
VFKS0002 **Tension Post Adj. Plate**



VFK0133 **Dial Torque Gauge**
VFK0180 **(Plastic Clamper Only)**

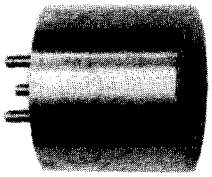


VFKS0009 **Reel Table Height Fixture**



VFKS0003 **H-Position Adj. Fixture**

VFK0134 **Adaptor for VFK0133**

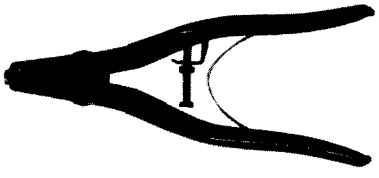


VFKS0004 **Cassette Holder Fixture**

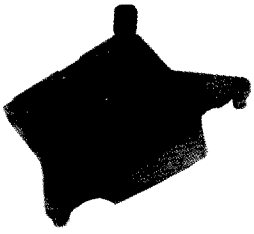
VFKS0031 V-Hold Adj. Tool

VFKS0032 Lock Screw Wrench

VFK0144 **Retaining Ring Remover (3mmϕ)**
VFK0145 **Retaining Ring Remover (4mmϕ)**

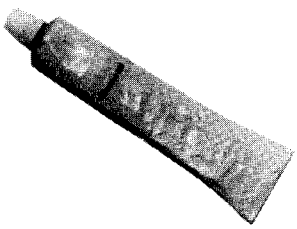


VFKS0029 **V-Stopper Adj. Fixture**



VFK0136 **Fine Adjustment Screwdriver (3mmϕ)**

MOR265 **Molytone Grease**



ELECTRICAL ADJUSTMENT PROCEDURES

SERVICE CAUTION

When servicing the Luminance, Chrominance C.B.A.s and the TV Demodulator Unit, take notice of following items.

A. Luminance and Chrominance C.B.A.s

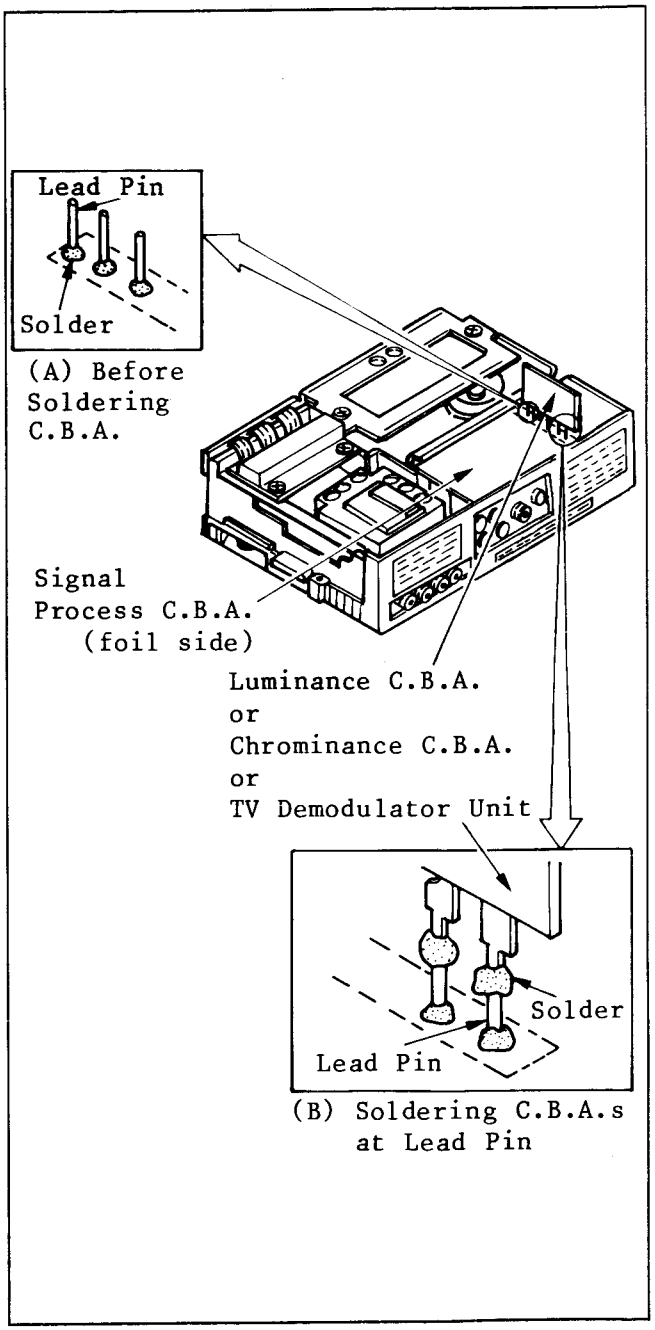
Do not bend or spread apart the Luminance and Chrominance C.B.A.s. By doing so, damage to the Signal Process C.B.A. or pins on the C.B.A.s may result.

B. Adjustment on these C.B.A.s and TV Demodulator Unit

Adjustment can be performed without removing these C.B.A.s or the TV Demodulator Unit.

C. Signal check and Replacement of parts on these C.B.A. and the TV Demodulator Unit

1. Remove TV Demodulator or one of these C.B.A.s, then insert the Lead Pins and solder on the foil side of Signal Process C.B.A. as shown in (A) in figure.
2. Solder the TV Demodulator Unit or the extracted C.B.A. at the Pins on the Signal Process C.B.A. as shown in (B) in figure.
   Ensure that the pins numbers are aligned with their respective PC Board Pin locations.
3. Perform the signal check or replace parts.
4. After completion, restore to the original assembled condition.

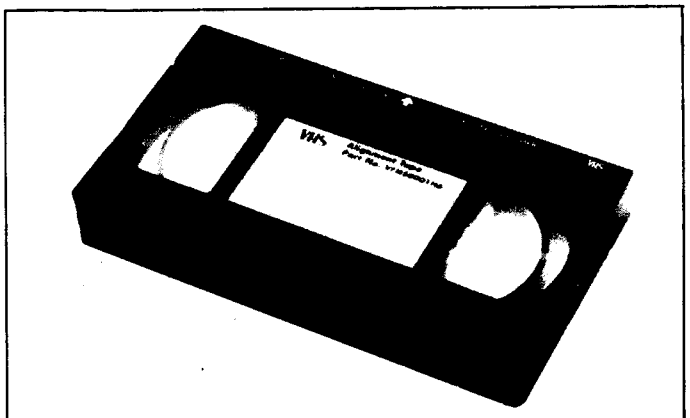


NOTE:
When troubleshooting the Luminance or Chrominance C.B.A. and soldering to the foil side of Signal Process C.B.A., remove the metal P.C.Board angle.

1. TEST EQUIPMENT

To perform the electrical adjustments completely, the following equipment is required.

1. DVM (Digital Volt Meter)
   Voltage Range: 0.001 - 50V
2. Dual-trace Oscilloscope
   Voltage Range: 0.001 - 50V/Div.
   Frequency Range: DC - 15MHz
   Probes: 10:1, 1:1
3. Frequency Counter
   Frequency Range: 0 - 150MHz
4. Signal Generator
   Sinewave: 0 - 10MHz
5. AC Millivolt Meter
   Voltage Range: 0 - 3mVrms.
6. Tuning Amp.
7. VIF Sweep Generator/Trap Adjuster
8. Spectrum Analyzer
9. NTSC Video Pattern Generator
10. DC Power Supply Unit
    Voltage: 0 - 15V DC
11. Variable Attenuater
    Attenuate: (+- 0) dB - -50dB
12. Monitor Scope
13. Color TV Receiver or Monitor
14. V-Hold ADJ. Tool
    (VFKS0031)
15. Plastic Tip Driver and Non-Metal Driver
16. Lock Screw Wrench
    (VFKS0032)
17. Isolation Transformer
18. VHS Alignment Tape
    (VFMS0001H6)



Start Counter Reading	0 (0)	0020 ± 8 (008 ± 6)	0135 ± 12 (060 ± 6)	0240 ± 20 (109 ± 10)
Video	Blank	Monoscope	Color Bars	Multi-Burst
Audio	Blank	6kHz(MONO)	3kHz(STEREO)	1kHz(MONO)

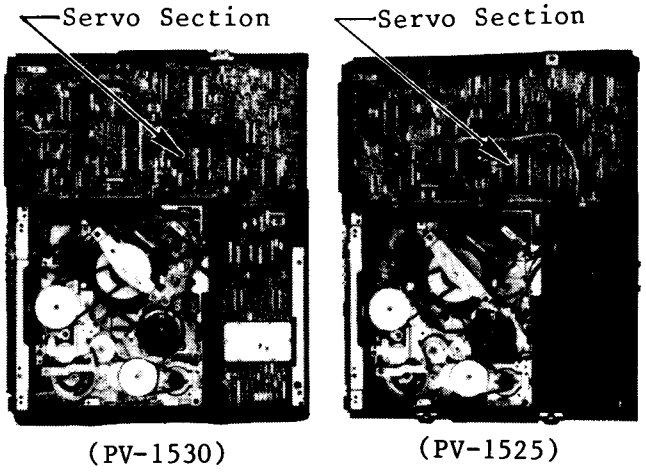
Fig. E1

2. ADJUSTMENT PROCEDURES

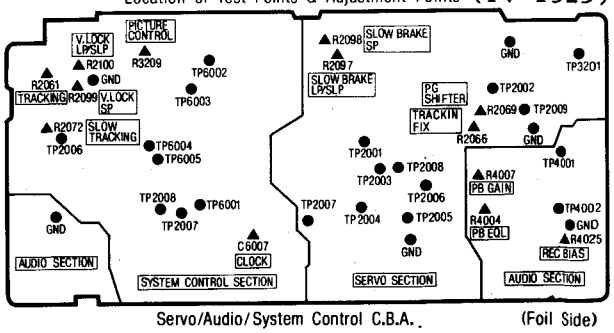
These adjustment procedures consist of th following sections.

1. Servo Section
2. Audio Section
3. Luminance and Chrominance Section
4. System Control Section
5. TV Demodulator Section
6. IR Wireless Receiving Detector Section (PV-1530)

2-1. SERVO SECTION

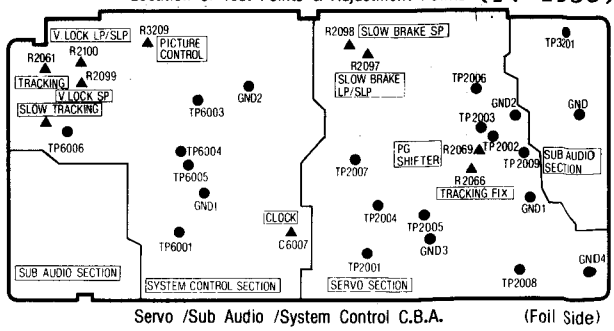


Location of Test Points & Adjustment Points (PV-1525)



Servo/Audio/System Control C.B.A. (Foil Side)

Location of Test Points & Adjustment Points (PV-1530)



Servo /Sub Audio /System Control C.B.A. (Foil Side)

Fig. E2

2-1-1. HEAD SWITCHING POSITION ADJUSTMENT

Test Points: TP2003, TP3201
Adjustment : R2069 (PG SHIFTER)

1. Playback color bar section of the alignment tape.
2. Connect the scope CH 1 to TP3201 on the Audio Jack Section and CH 2 to TP2003 on the Servo Section. Set the scope to the CHOP mode.
3. Also set the scope to the Delay mode or expand the vertical interval of the signal from TP3201.
4. Adjust the PG SHIFTER (R2069) so that the head switching point is 6 (+- 1) H before the start of vertical sync as shown below.

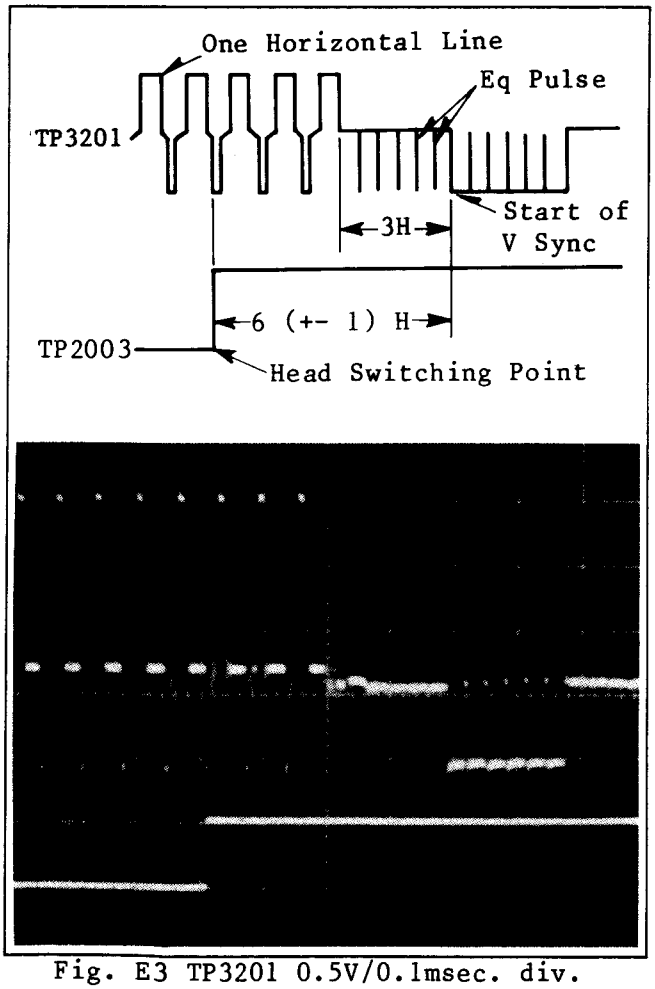


Fig. E3 TP3201 0.5V/0.1msec. div.
TP2003 5V/0.1msec. div.

5. Change the slope selector on the scope from "+" to "-" and make sure that the other switching point is also 6 (+- 1) H before the beginning of vertical sync.

2-1-2. TRACKING FIX ADJUSTMENT

Test Points: TP2002, TP2003
Adjustment : R2066 (TRACKING FIX)

1. Supply a video signal to the Video Input on the rear panel or tune in a local TV program.
2. Set the Tracking Control on the front panel to the center detent point.
3. Insert a cassette tape and make a recording in the SP mode for a few minutes.
4. Playback the portion just recorded.
5. Connect the scope CH1 to TP2003 and CH2 to TP2002 on the Servo Section.
6. Adjust the TRACKING FIX (R2066) so that the T is 7.3 (+- 0.4) msec.

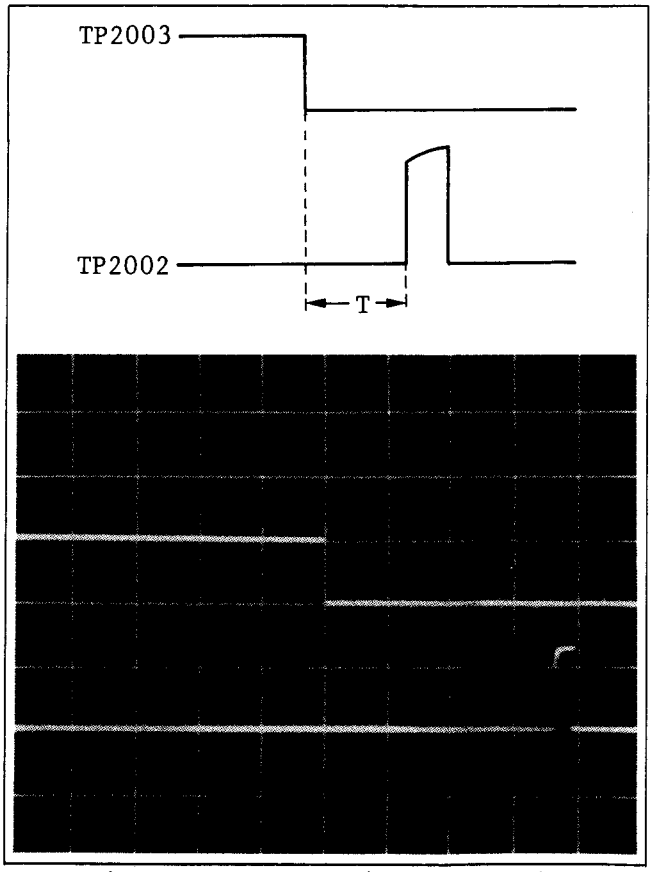


Fig. E4 TP2003 5V/0.5msec. div.
TP2002 1V/0.5msec. div.

2-1-3. SLOW BRAKE ADJUSTMENT

Test Points : TP2006, TP2007
Adjustments : R2098 (SLOW BRAKE-SP)
R2097 (SLOW BRAKE-SLP)

1. Supply a video signal to the video Input on the rear panel or tune in a local TV program.
2. Insert a cassette tape and make a recording in the SP mode for a few minutes.
3. Playback the portion just recorded.
4. Press the slow/FA key on the front panel.
5. Connect the scope CH1 to TP2007 and CH2 to TP2006 on the Servo Section. Set the scope to the CHOP mode.
6. Adjust the SLOW BRAKE-SP (R2098) so that the A-portion is as shown below.

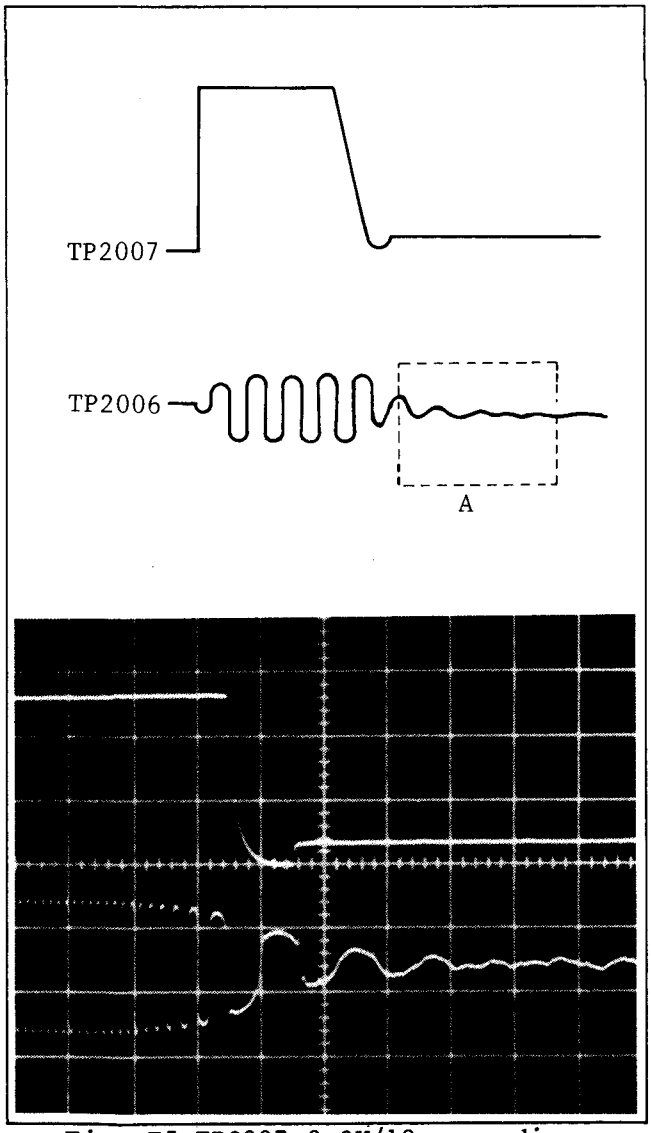


Fig. E5 TP2007 0.2V/10msec. div.
TP2006 0.5V/10msec. div.

7. In case of misadjustment, A-portion is as shown below.

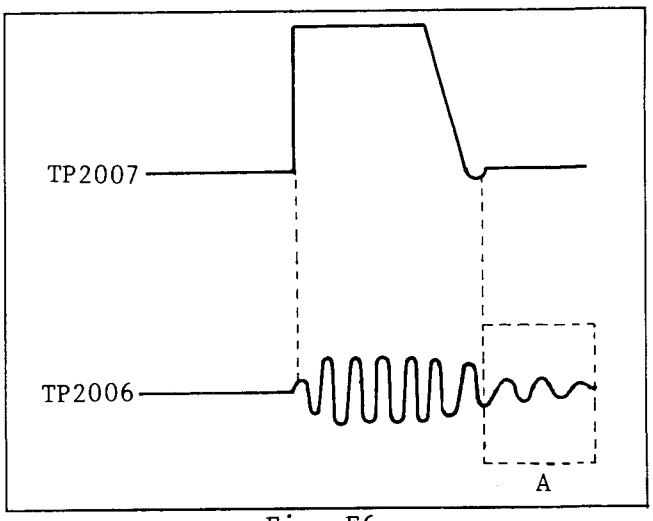


Fig. E6

8. Then, change to SLP and make a recording for a few minutes.
9. Playback the portion just recorded.
10. Press the Slow/FA key on the front panel.
11. Adjust the slow BRAKE-SLP (R2097) same as in the SP mode.

2-1-4. V LOCK ADJUSTMENT

Equipment : TV Monitor
Adjustments : R2100 (V-LOCK-SLP)
R2099 (V-LOCK-SP)

1. Supply a color bar signal to the Video Input on the rear panel or tune in a local TV program.
2. Insert a cassette tape and make a recording in the SLP mode for a few minutes.
3. Playback the portion just recorded.
4. Set the slow tracking VR on the front panel to the center detent point.
5. Push the PAUSE/STILL key.
6. Adjust the V-LOCK-SLP (R2100) on the System Control Section so that the center of picture is most stable.

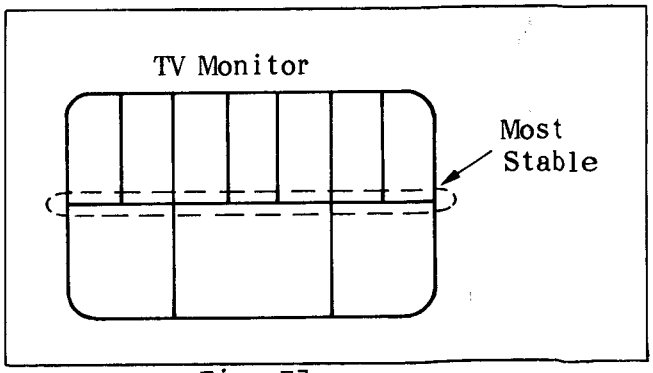


Fig. E7

7. Place the unit in SP mode and make a recording for a few minutes.
8. Playback the portion just recorded, and push the PAUSE/STILL key.
9. Adjust the V-LOCK-SP (R2099) on the System Control Section so that the center of picture is most stable.

2-2. AUDIO SECTION

A. Adjustment for PV-1525

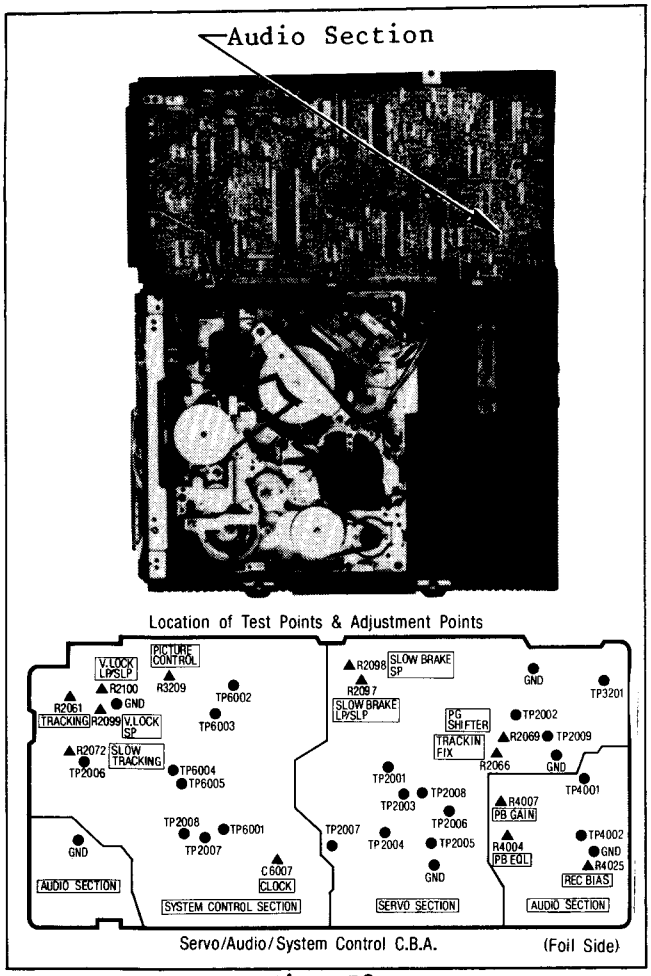


Fig. E8

2-2-1. BIAS CURRENT ADJUSTMENT

Test Point: Audio Head Terminal
Adjustment: R4025 (REC BIAS)

1. Plug in a phono plug to the Audio Input on the rear panel, but do not supply the Audio signal.
2. Insert a cassette and make a recording in the SP mode.
3. Connect the AC Millivolt Meter or scope as shown in Fig. E9.

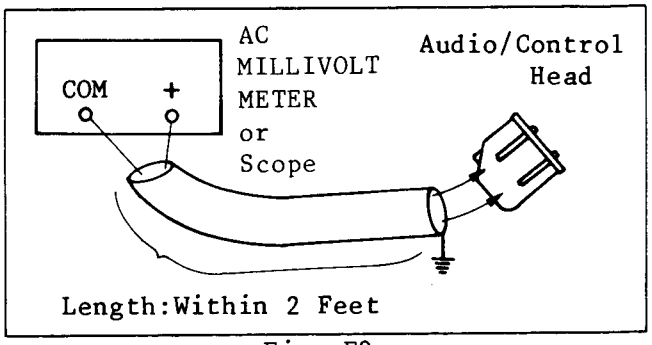
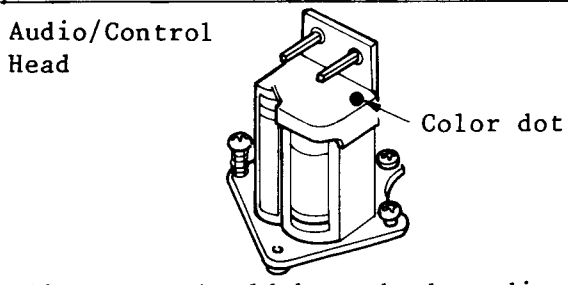


Fig. E9

4. While the recording is taking place, adjust the REC BIAS (R4025) on the Audio Section so that the voltage is within the specification. (Specification should be decided by the color of the dot on A/C Head.)

COLOR DOT	ADJUSTMENT VOLTAGE
NO COLOR DOT	2.4 (+- 0.05) mVrms or 6.8 (+- 0.1) mVp-p
RED COLOR	2.1 (+- 0.05) mVrms or 5.9 (+- 0.1) mVp-p



Adjustment should be made depending on the color of the dot on the A/C head as above.

Fig. E10

5. Remove the AC Millivolt Meter or scope.

Note:
For Service replacement, A/C Head without color dot is supplied.

2-2-2. PLAYBACK GAIN AND EQUALIZATION ADJUSTMENT

Test Point : TP4001
Adjustments: R4007 (PB GAIN)
R4004 (PB EQL)

1. Supply a sinewave signal (1kHz and 5kHz, -30dB, 89mVp-p) to the Audio Input on the rear panel.
2. Supply the video signal to the Video Input on the rear panel.
3. Connect the AC Millivolt Meter or scope to TP4001 on the Audio Section

4. Insert a cassette tape and make a recording 1kHz signal first then 5kHz signal in the SP mode. Read the voltage of 1kHz.
5. Playback the 1kHz portion just recorded.
6. Adjust PB GAIN (R4007) so that the voltage of playback is equal to that of recording.
7. Adjust the PB EQL (R4004) so that the 1kHz and 5kHz outputs are balanced.
8. Remove the AC Millivolt Meter or scope.

B. <u>Adjustment for PV-1530</u>

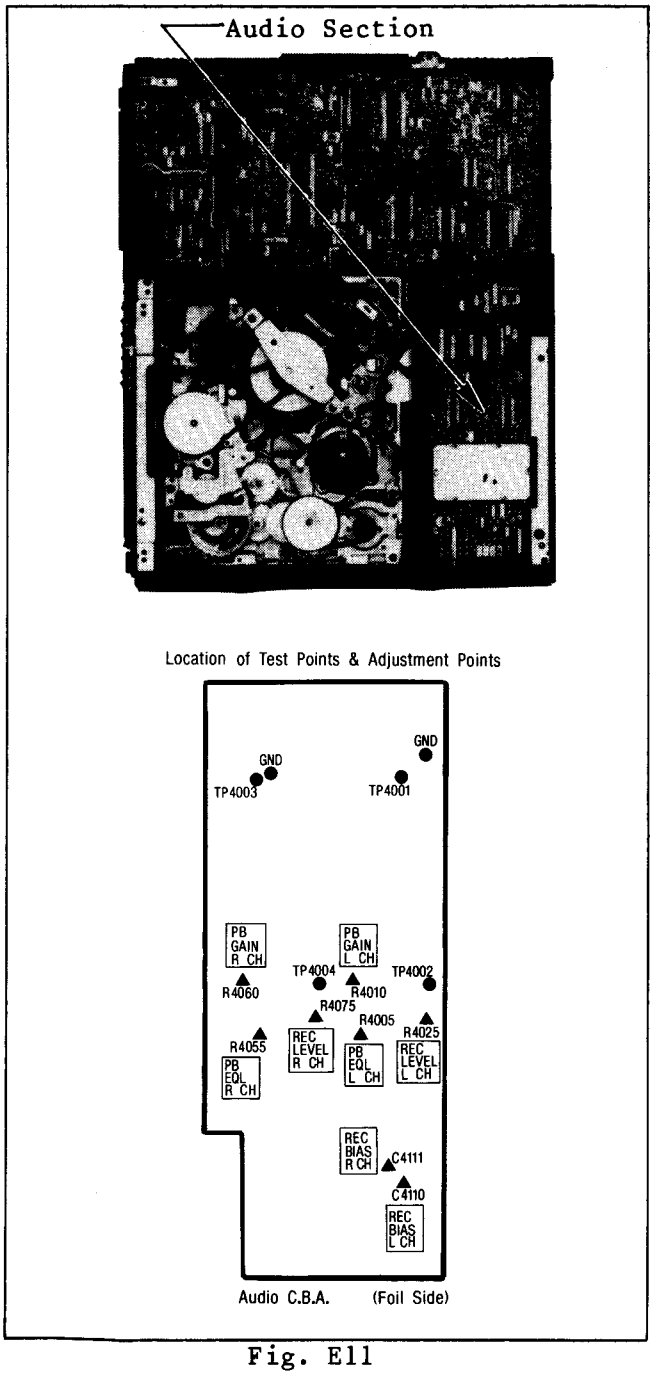


Fig. E11

2-2-3. BIAS CURRENT ADJUSTMENT

Test Point: Audio Head Terminal (L, R)
Adjustment: C4110 (L CH, REC BIAS)
C4111 (R CH, REC BIAS)

1. Plug in a phono plug to the Audio Input, but do not supply any audio signal to the AUDIO INPUT on the rear panel.
2. Insert a cassette tape and make a recording in the SP mode.
3. Connect the AC Millivolt Meter or scope as shown in Fig. E12.

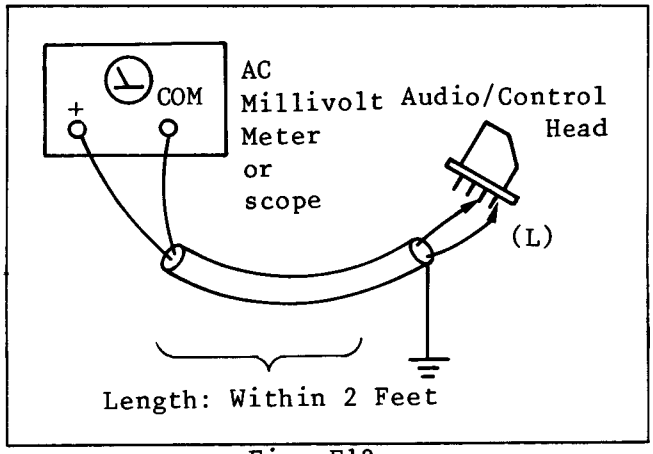


Fig. E12

4. While the recording is taking place, adjust the L CH REC BIAS (C4110) on the Audio Section so that the voltage is within the specification.
5. Change the connected point of the AC Millivolt Meter or scope as shown below.

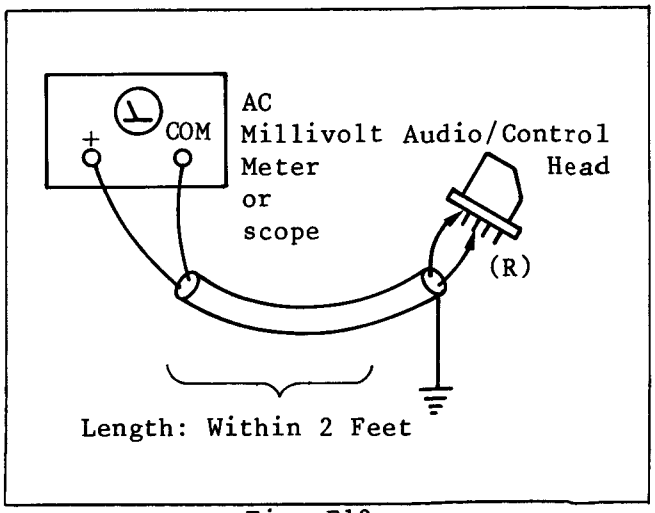
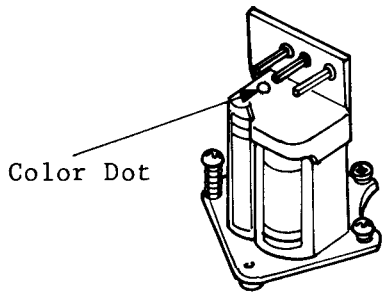


Fig. E13

6. During recording, adjust the R CH REC BIAS (C4111) on the Audio Section so that the voltage is within the specification. (Specification should be decided by the color of the dot on A/C Head.)

COLOR DOT	ADJUSTMENT VOLTAGE
NO COLOR DOT	1.5 (+- 0.05) mVrms or 4.3 (+- 0.1) mVp-p
WHITE COLOR	



Adjustment should be made depending on the color of the dot on the A/C head as above.

Fig. E14

7. Remove the AC Millivolt Meter or scope.

Note:
For Service replacement, A/C Head without color dot is supplied.

2-2-4. PLAYBACK GAIN ADJUSTMENT

Test Points: TP4001 (L CH)
TP4003 (R CH)
Adjustments: R4010 (PB GAIN-L CH)
R4060 (PB GAIN-R CH)

1. Playback Multi-Burst section (1kHz Audio) of the alignment tape (VFMS 0001H6).
2. Connect the scope CH1 to TP4001 and CH2 to TP4003 on the Audio Section
3. Set the DOLBY NR Switch on the front panel to OFF.
4. Set the scope to CH1 mode and adjust the PB GAIN-L CH (R4010) on the Audio Section so that the level of waveform is 300 (+- 15) mVp-p.

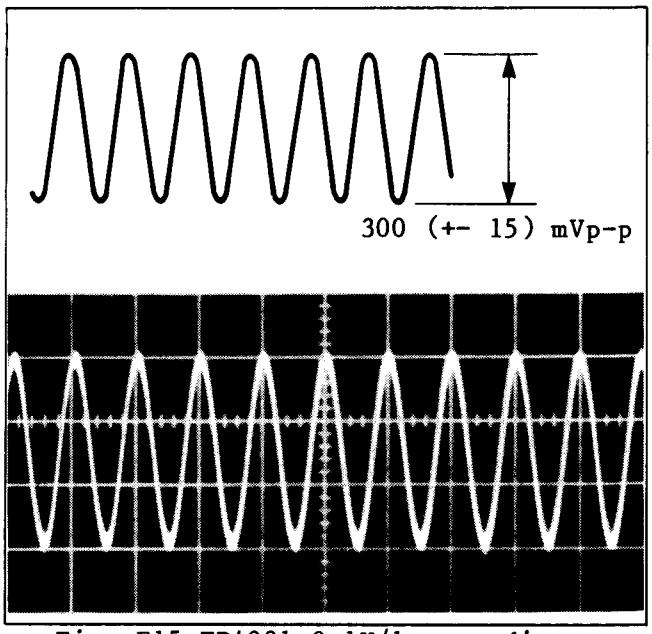


Fig. E15 TP4001 0.1V/1msec. div.

5. Set the scope to CH2 mode and adjustment PB GAIN-R CH (R4060) on the Audio Section so that the level of waveform is 300 (+- 15) mVp-p.

2-2-5. Recording Gain Adjustment

Test Points : TP4001, TP4003
Adjustments : R4025 (REC LEVEL-L CH)
R4075 (REC LEVEL-R CH)

(L Channel)
1. Connect the Signal Generator to AUDIO IN (L) jack on the rear panel.
2. Supply a sinewave signal (1kHz, -10dB, 890mVp-p) from the Signal Generator.
3. Set the DOLBY NR Switch on the front panel to OFF.
4. Place the unit in SP recording mode.
5. Connect the scope to TP4001 on the Audio Section and set the recording level at approx. 1.3 Vp-p as a starting point of this adjustment.
6. Playback the portion just recorded and read the level of Playback.
7. Confirm that the Recording level and Playback level are the same level.
8. If the Recording level and Playback level aren't the same. During Recording , turn the REC LEVEL-L (R4025) to slightly increase or decrease the signal level.
9. Repeat above step 4 and 8 until Recording level and Playback level are the same.

(R Channel)

1. Connect the signal Generator to AUDIO IN (R) jack on the rear panel.
2. Supply a sinewave signal (1KHz, -10dB, 890mVp-p) from the Signal Generator.
3. Place the unit in SP recording mode.
4. Connect the scope to TP4003 on the Audio Section and set the recording level at approx. 1.3 Vp-p as a starting point of this adjustment.
5. Playback the portion just recorded and read the level of playback.
6. Adjust the REC LEVEL-R (R4075) as is done in L channel adjustment.

2-2-6. Overall Frequency Response Adjustment

Test Point : TP4001 (L CH)
TP4003 (R CH)
Adjustments: R4005 (PB EQ-L CH)
R4055 (PB EQ-R CH)

1. Supply the color bar signal to the Video Input on the rear panel.
2. Supply a sinewave signal (1KHz and 5KHz, 40dB, 28mVp-p) to either Audio Input L CH or R CH on the rear panel.
3. Connect the AC Millivolt Meter to TP4001 on the Audio Section.
4. Insert a cassette tape and make a recording in SP mode 1KHz first, then 5KHz.
5. Connect the phono plug to Audio Out jack (R CH).
6. Playback the portion just recorded.
7. Adjust PB EQ-L CH (R4005) on the Audio Section so that the 1KHz and 5KHz outputs are balanced.
8. Then, connect the AC Millivolt Meter to TP4003 on the Audio Section.
9. Remove the phono plug from Audio Out jack (R CH), then connect the Phono plug to Audio Out jack (L CH).
10. Playback the portion just recorded.
11. Adjust the PB EQ-R CH (R4055) on the Audio Section so that the 5KHz output is 0 (+- 0.5)dB of 1KHz output.
12. Remove the AC Millivolt Meter and the Phono plug.

2-3. LUMINANCE AND CHROMINANCE SECTION

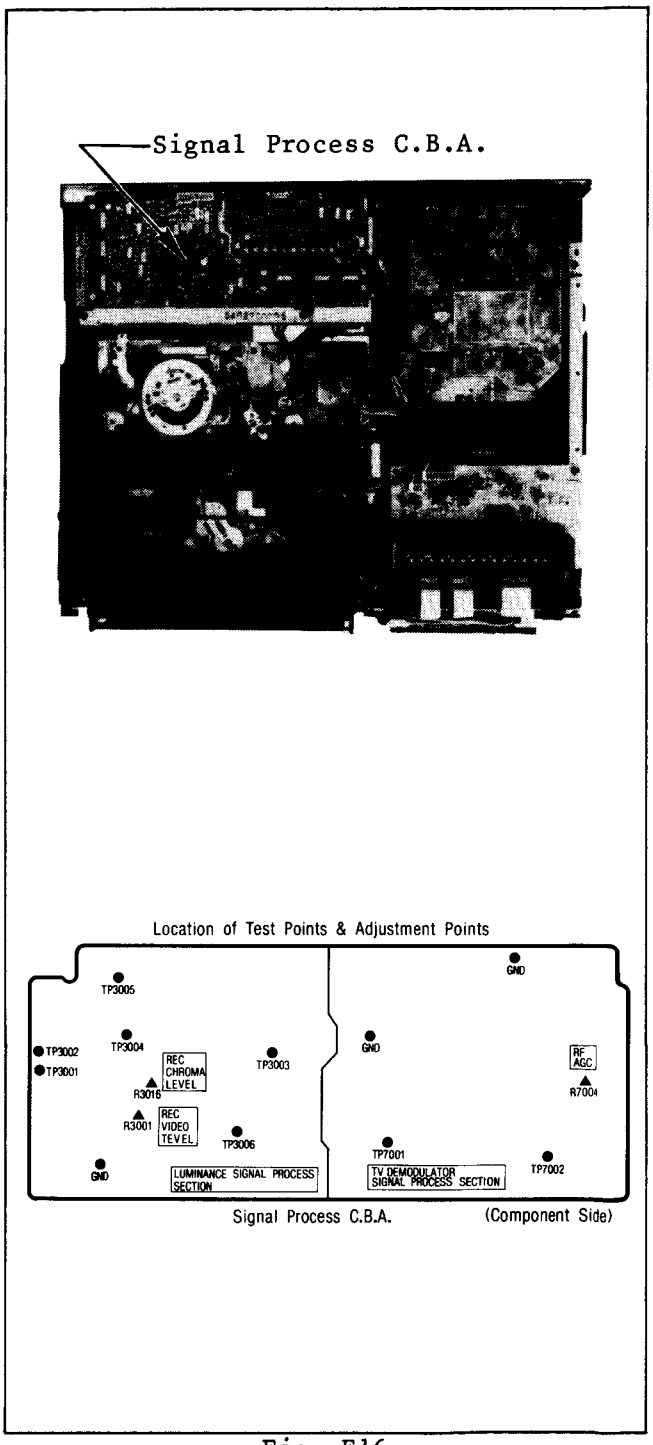
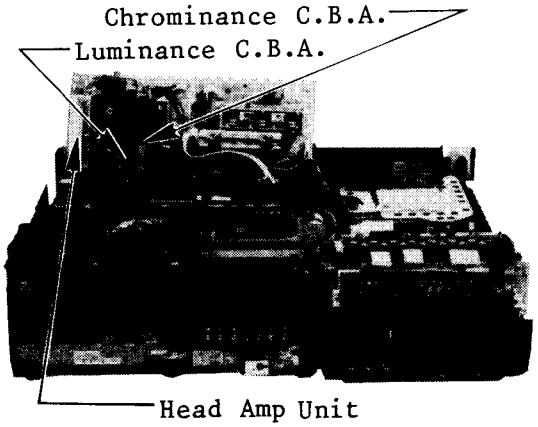
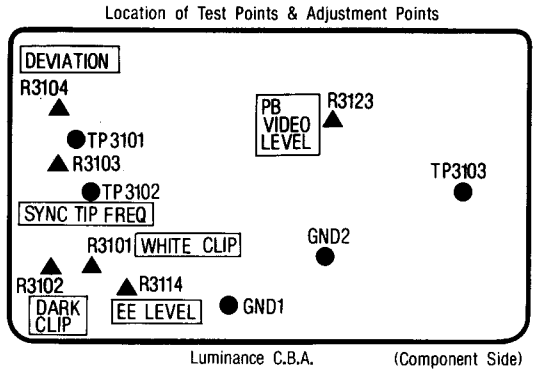
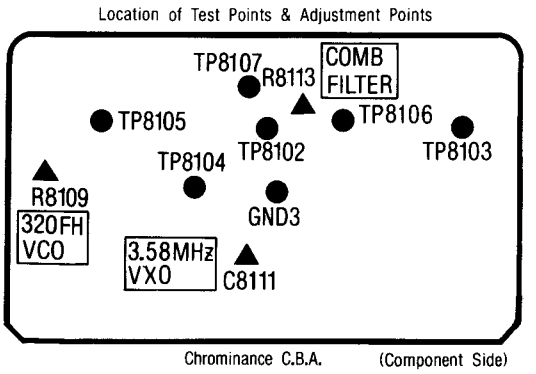


Fig. E16







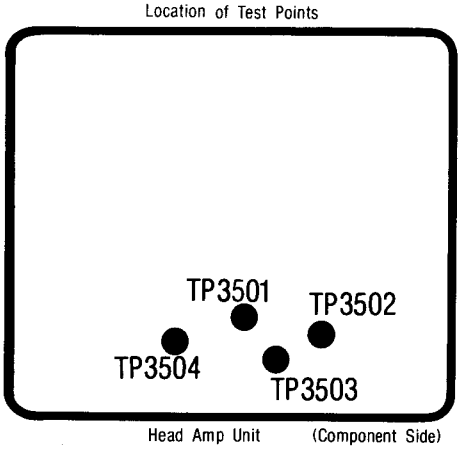


Fig. E17

2-3-1. E-E LEVEL ADJUSTMENT

Test Point: TP3004
Adjustment: R3114 (E-E LEVEL)

1. Supply NTSC Color Bar Signal W/White Window (1Vp-p) to the Video Input on the rear panel.
2. Connect the scope to TP3004 on the Luminance Signal Process Section.
3. Place the unit in STOP mode.
4. Adjust the E-E LEVEL (R3114) on the Luminance C.B.A. so that the video level is 2.0 (+- 0.1) Vp-p.

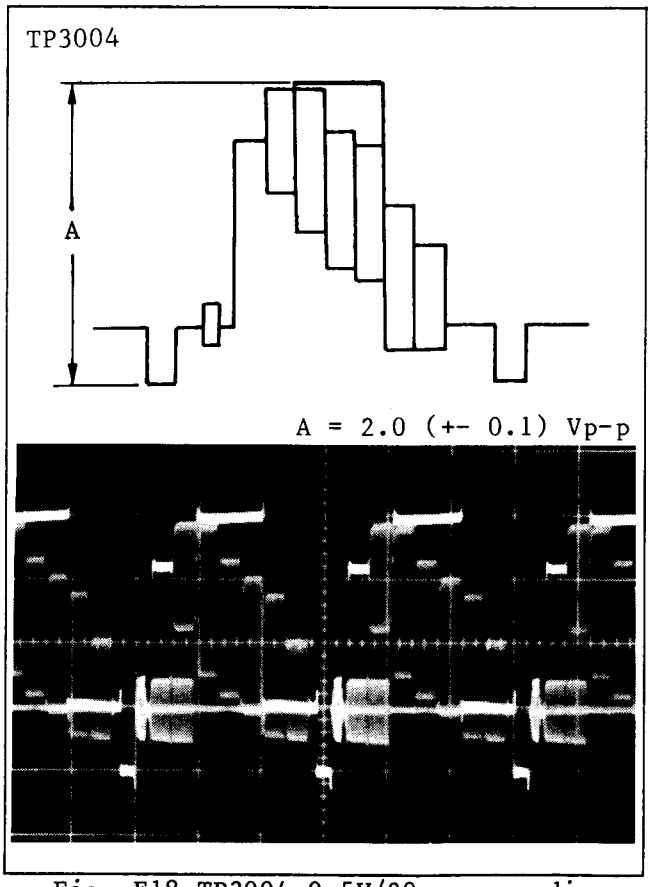


Fig. E18 TP3004 0.5V/20 u-sec. div.

2-3-2. SYNC TIP FREQUENCY AND DEVIATION ADJUSTMENT

Test Points: TP3502, TP3503, TP3002
Adjustments: R3103 (SYNC TIP FREQ)
R3104 (DEVIATION)

(A-1, Sync Tip Frequency Adjustment)

1. Plug in a phono plug to the Video Input on the rear panel, but do not supply video signal.

2. Connect the frequency counter to TP3002 on the Luminance Signal Process Section.
3. Insert a cassette tape and place the unit in SP REC mode.
4. Adjust the SYNC TIP FREQ (R3103) so that the frequency is 3.4 (+- 0.04) MHz.
5. Remove the frequency counter.

(A-2, Deviation Adjustment)

6. Turn the WHITE CLIP (R3101) and the DARK CLIP (R3102) to fully counter-clockwise from the component side.
7. Turn the REC VIDEO LEVEL (R3001) to fully counterclockwise and the REC CHROMA (R3016) to fully clockwise from the component side.
8. Connect a signal generator (sinewave) to TP3001 through the resistor (1kΩ). Set the frequency and the output level of the signal generator.
   Frequency : 4.35 (+- 0.04) MHz
   Output Level : 0.1Vp-p

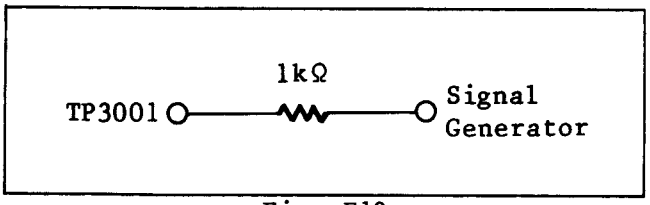


Fig. E19

9. Supply an NTSC Color Bar Signal (1Vp-p) to the Video Input on the rear panel.
10. Connect the scope to TP3503 (HOT) and TP3502 (GND) on the Head Amp Section. Use TP3006 as a trigger.
11. Turn the DEVIATION (R3104) to fully clockwise from the component side. Then slowly adjust the DEVIATION (R3104) so that maximum inner beat is produced as shown below.

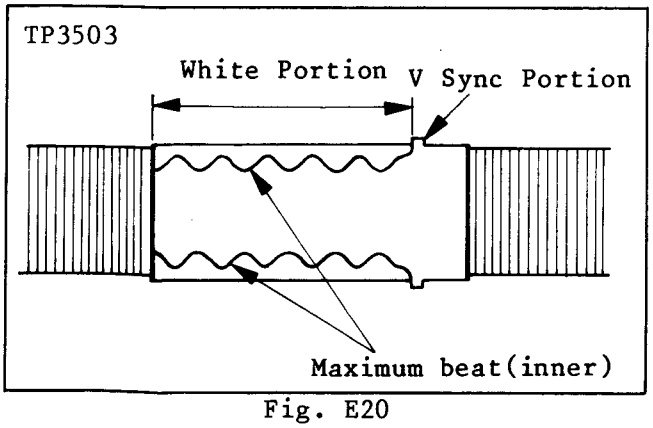


Fig. E20

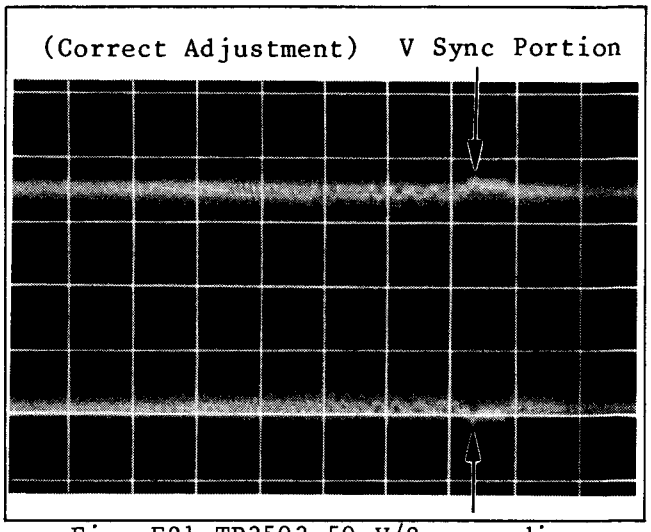


Fig. E21 TP3503 50mV/2msec. div.

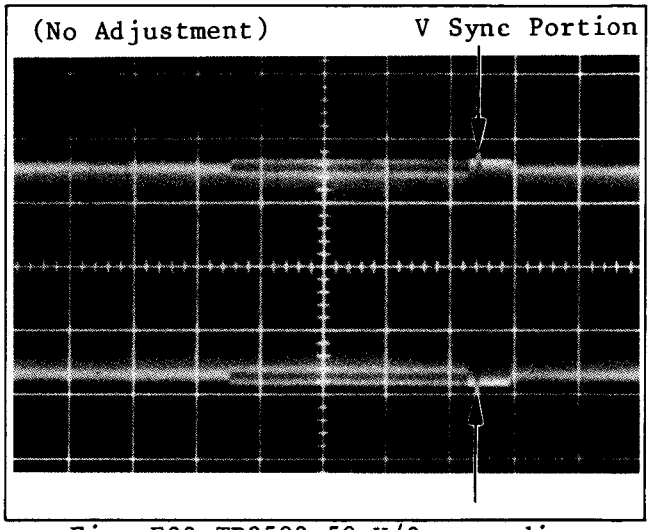


Fig. E22 TP3503 50mV/2msec. div.

Note : Inner beat is used for this adjustment but not outer beat as shown below.

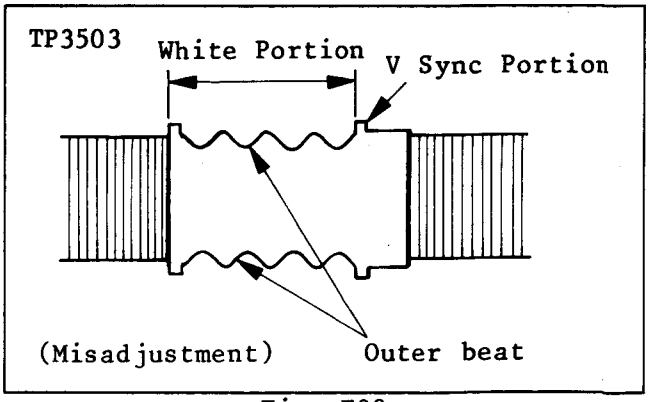


Fig. E23

12. Remove the resistor and a signal generator.
13. Make WHITE and DARK CLIP adjustment and Recording Current adjustment.

2-3-3. WHITE AND DARK CLIP ADJUSTMENT

Test Point : TP3101
Adjustments: R3101 (WHITE CLIP)
R3102 (DARK CLIP)

1. Supply an NTSC Color Bar Signal W/White Window to the Video Input on the rear panel.
2. Connect the scope to TP3101 on the Luminance C.B.A.
3. Place the unit in SP REC mode.
4. Adjust the WHITE CLIP (R3101) and the DARK CLIP (R3102) on the Luminance C.B.A. so that the over-shoot and undershoot are as shown below.

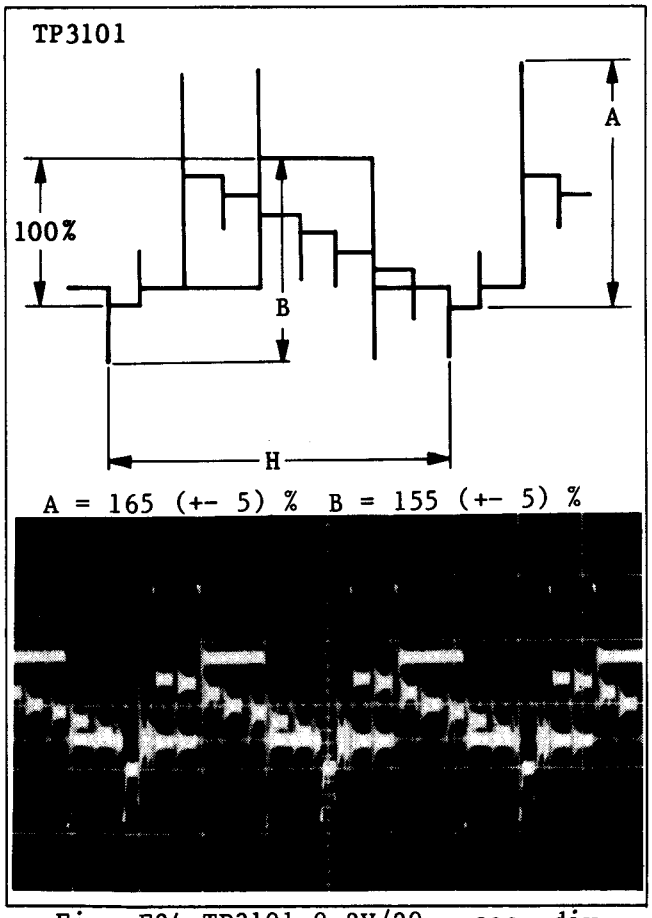


Fig. E24 TP3101 0.2V/20 u-sec. div.

2-3-4. RECORDING CURRENT ADJUSTMENT

Test Points: TP3004, TP3006, TP3502
TP3503
Adjustments: R3001 (REC VIDEO LEVEL)
R3016 (REC CHROMA LEVEL)

1. Supply an NTSC Color Bar Signal W/White Window to the Video Input on the rear panel.
2. Insert a cassette tape and make a recording in the SP mode.
3. Connect the scope between TP3503 (HOT) and TP3502 (GND) on the Head Amp Section.
4. Turn the REC VIDEO LEVEL (R3001) fully clockwise from the component side.
5. Set the scope 20mV/div., 20 u-sec/div. Use TP3004 as scope trigger.
6. Adjust the REC CHROMA (R3016) on the Luminance Signal Process Section so that the level of cyan portion is 32 (+- 3) mVp-p.

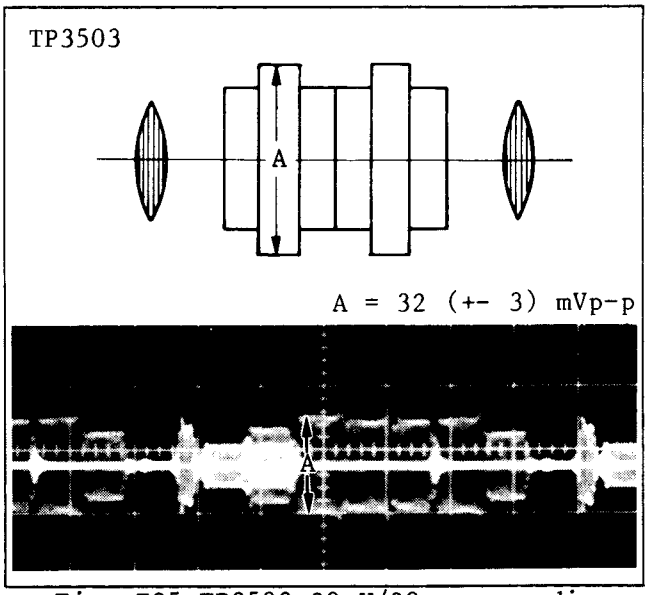


Fig. E25 TP3503 20mV/20 u-sec. div.

7. Then set the scope 20mV-div., 2msec/div.
Use TP3006 as scope trigger.
8. Adjust the REC VIDEO LEVEL (R3001) on the Luminance Signal Process Section so that the level of V sync portion is 120 (+- 3) mVp-p.

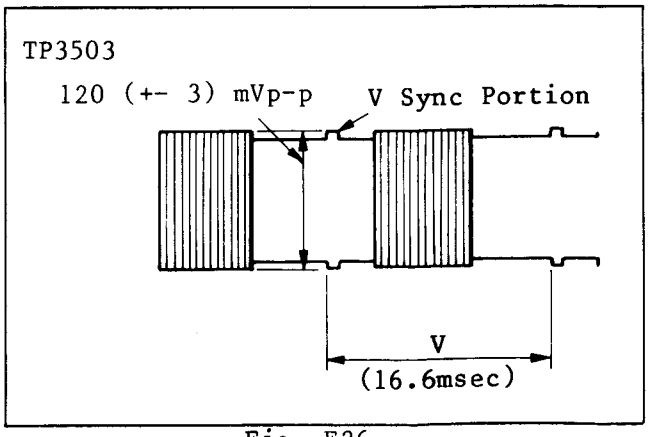


Fig. E26

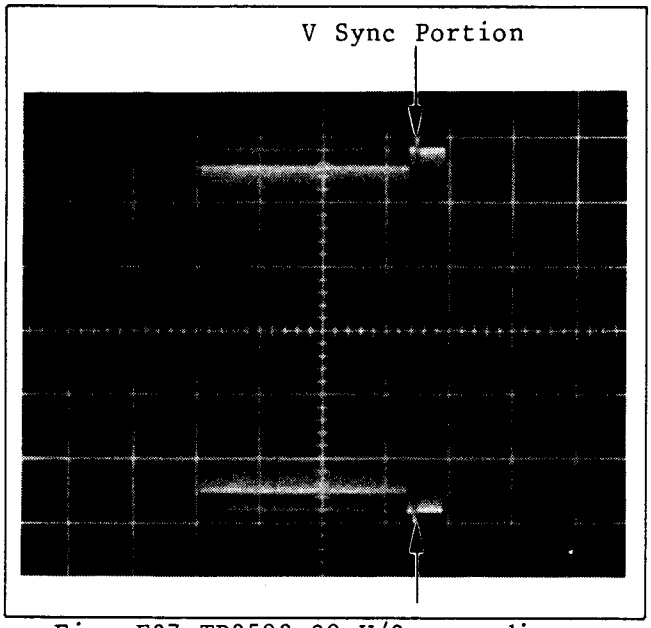


Fig. E27 TP3503 20mV/2msec. div.

2-3-5. 320FH VCO ADJUSTMENT

Test Point: TP8103
Adjustment: R8109 (320FH VCO)

1. Place the unit in STOP mode.
2. Connect the test point (TP8103) to Pin 3 of Chrominance C.B.A. through the resistor (1kΩ) and the diodes (MA165).

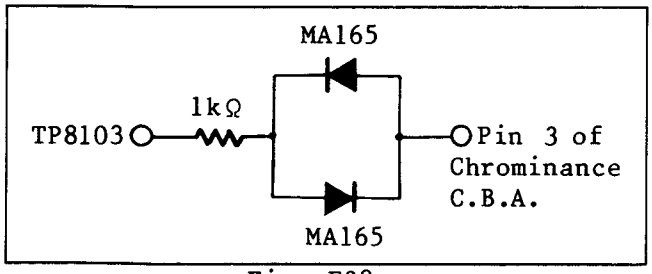


Fig. E28

3. Connect the frequency counter to TP8103 on the Chrominance C.B.A.
4. Adjust the 320FH VCO (R8109) from the component side on the Chrominance C.B.A. so that the frequency is 4.2 (+- 0.1) MHz.
5. Remove the frequency counter, resistor/diodes.

2-3-6. 3.58MHZ VXO ADJUSTMENT

Test Point: TP8104
Adjustment: C8111 (3.58MHz VXO)

1. Place the unit in STOP mode.
2. Connect the test point (TP8102) to GND on the Chrominance C.B.A. through the resistor (22kΩ) and the capacitor (0.01 u-F).

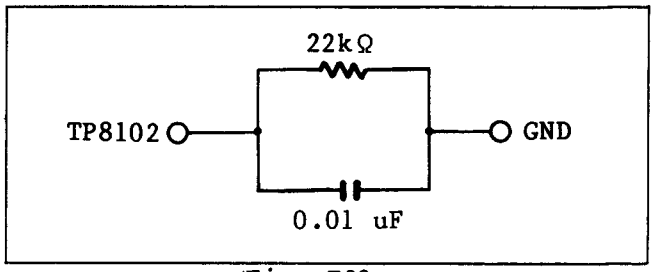


Fig. E29

3. Connect the frequency counter to TP8104 on the Chrominance C.B.A.
4. Adjust the 3.58MHz VXO (C8111) from the component side on the Chrominance C.B.A. so that the frequency is 3.579545 MHz (+- 20) Hz
5. Remove the frequency counter, resistor/capacitor.

2-3-7. COMB FILTER ADJUSTMENT

Test point: TP3004
Adjustment: R8113 (COMB FILTER)

1. Supply a color bar signal to the Video Input on the rear panel.
2. Insert a cassette tape and make a recording in the SLP mode.
3. Connect the scope to TP3004 on the Luminance Signal Process Section.
4. Playback the portion just recorded.
5. Turn the Tracking Control on the front panel for the poorest tracking. (Worst playback image.)
6. During playback, adjust the COMB FILTER (R8113) on the Chrominance C.B.A. from the component side as shown below.

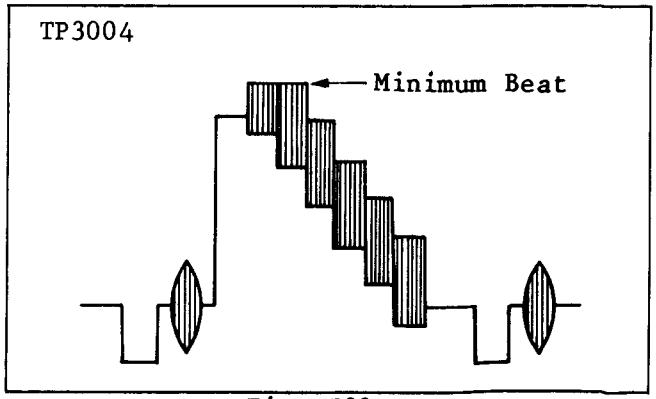


Fig. E30

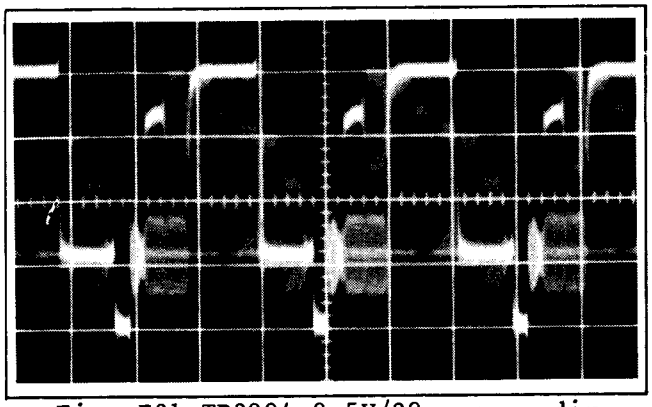


Fig. E31 TP3004 0.5V/20 u-sec. div.

2-3-8. PLAYBACK LEVEL ADJUSTMENT

Test Point: TP3004
Adjustment: R3123 (PB VIDEO LEVEL)

1. Supply an NTSC Color Bar Signal W/White Window (1Vp-p) to the Video Input on the rear panel.
2. Insert a cassette and make a recording in the SP mode for a few minutes
3. Connect the scope to TP3004 on the Luminance Signal Process Section.
4. Playback the portion just recorded.
5. During playback, adjust the PB VIDEO LEVEL (R3123) on the Luminance C.B.A. so that the video level is 2.0 (+- 0.1) Vp-p.
6. Confirm that the level of cyan portion is 1.36 (+- 0.2) Vp-p.

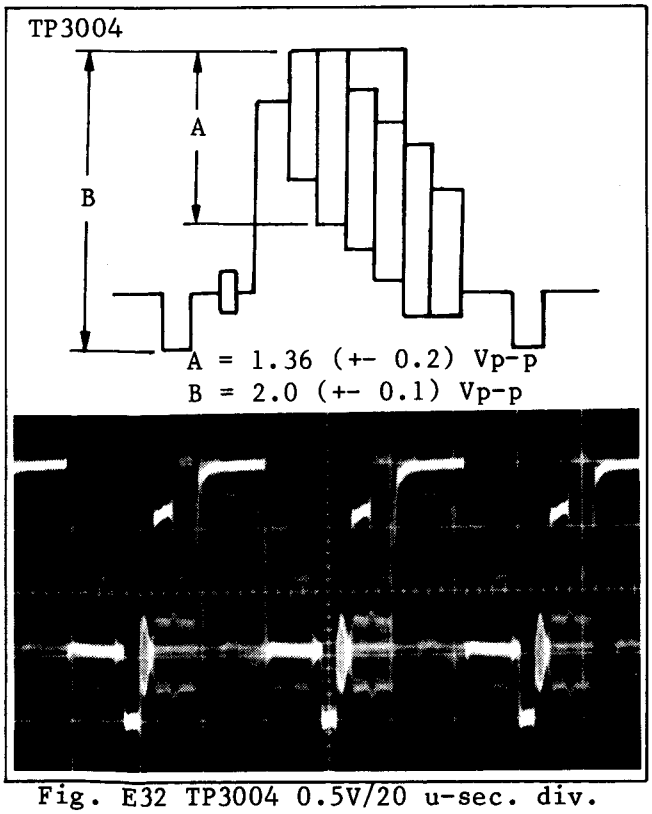
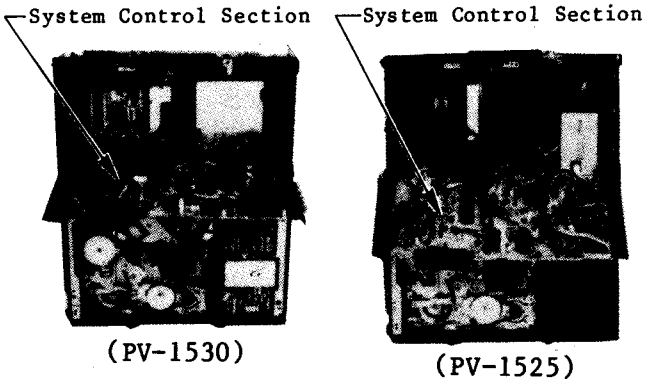
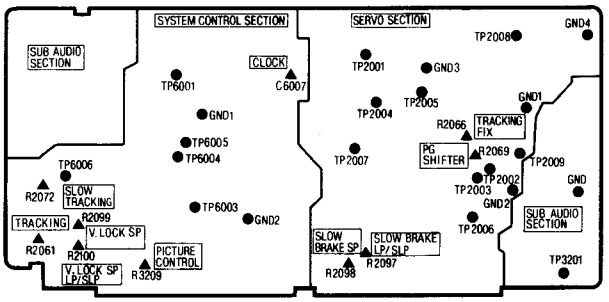


Fig. E32 TP3004 0.5V/20 u-sec. div.

2-4. SYSTEM CONTROL SECTION

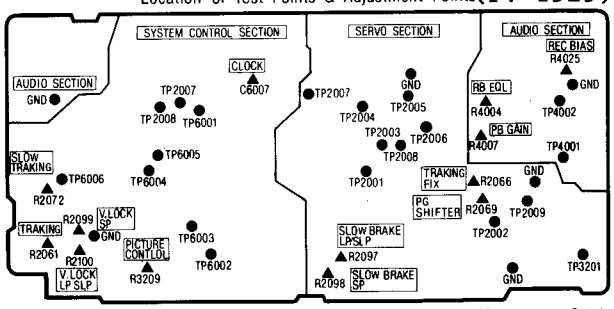


Location of Test Points & Adjustment Points (PV-1530)



Servo /Sub Audio /System Control C.B.A. (Component Side)

Location of Test Points & Adjustment Points (PV-1525)



Servo /Audio /System Control C.B.A. (Component Side)

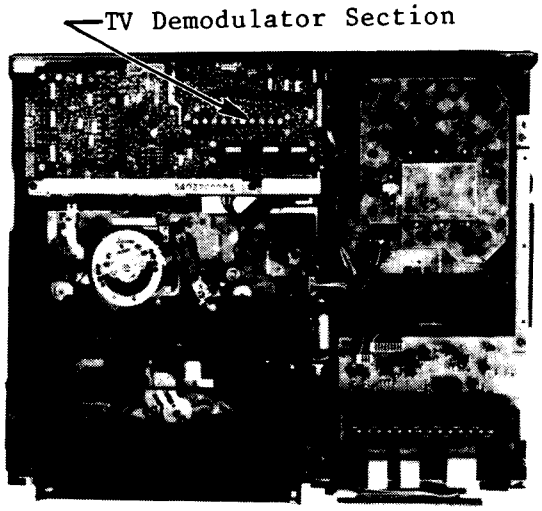
Fig. E33

2-4-1. CLOCK ADJUSTMENT

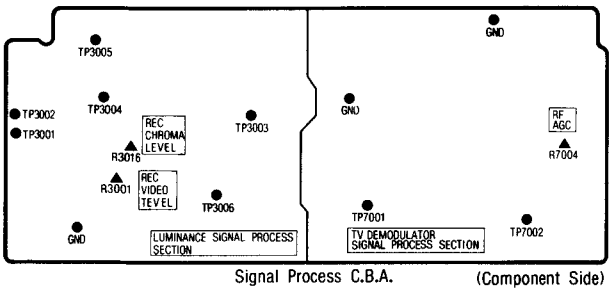
Test Point: TP6001
Adjustment: C6007 (CLOCK)

1. Connect the frequency counter with 10:1 Probe to TP6001 on the System Control Section.
2. Adjust the CLOCK (C6007) from the component side so that the frequency at TP6001 is 349.525 (+- 0.001) KHz.
3. Remove the frequency counter.

2-5. TV DEMODULATOR SECTION

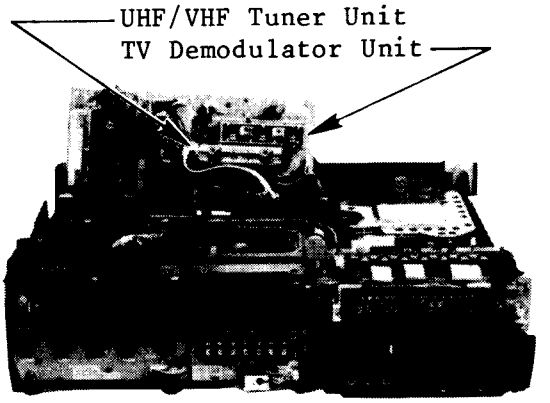


Location of Test Points & Adjustment Points



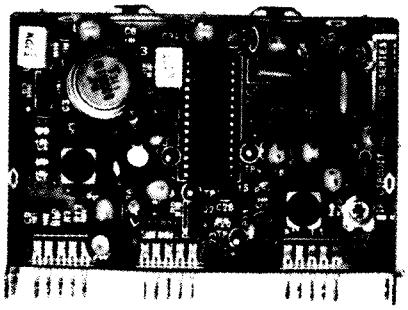
Signal Process C.B.A. (Component Side)

Fig. E34

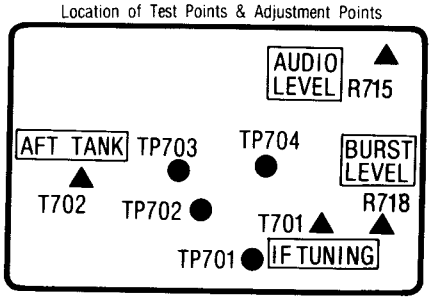


(Component Side)

TV Demodulator Unit

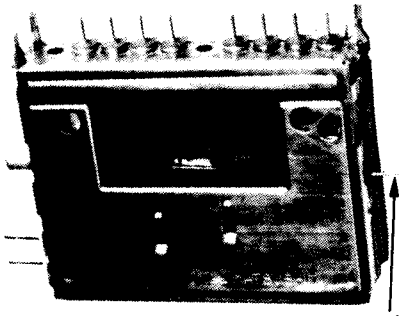


Location of Test Points & Adjustment Points



(Component Side)

UHF/VHF Tuner Unit



Tuner Test Point

Fig. E35

2-5-1. VIF OVERALL CONFIRMATION AND VCO ADJUSTMENT

Test Points: TP703, TP704
Adjustment : T701 (VCO)

(CAUTION)
Since the TV Demodulator Unit and UHF/VHF Tuner Unit have already been factory adjusted, do not try to adjust unless absolutely necessary.

A: Factory Adjustment

A-1. VIF Overall Confirmation

1. Connect the VIF Sweep Generator/Trap Adjuster and Monitor Scope as shown below.

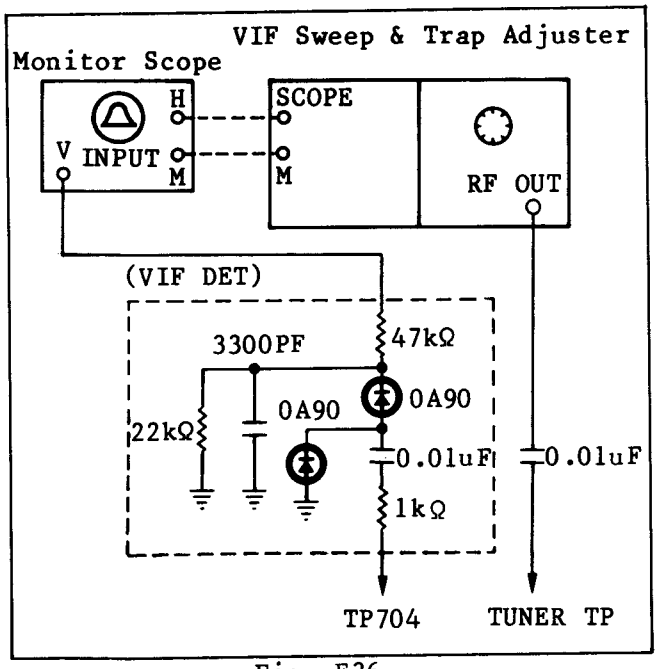


Fig. E36

2. Connect the output of the VIF Sweep Generator to tuner test point on the UHF/VHF Tuner Unit.
3. Connect the V Input of the Monitor Scope to TP704 on the TV Demodulator Unit through VIF Detector.
4. Select Channel 13.
5. Set the AFT switch to "OFF" position.
6. Connect the DC Power Supply Unit to TP701 on the TV Demodulator Unit and Set at 0V DC as a starting point.
7. Connect TP702 and GND with a 3.3 u-F/25V capacitor.
8. Adjust the VCO (T701) so that the beat portion is at center as shown in Fig. E37.

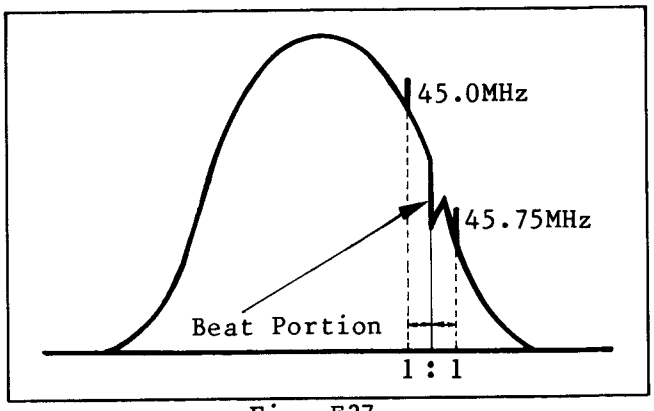


Fig. E37

9. Set the voltage on DC Power Supply the TP701 so that the waveform level is maximum.
10. Adjust the output of the VIF Sweep Generator so that the A level is 1.0Vp-p.

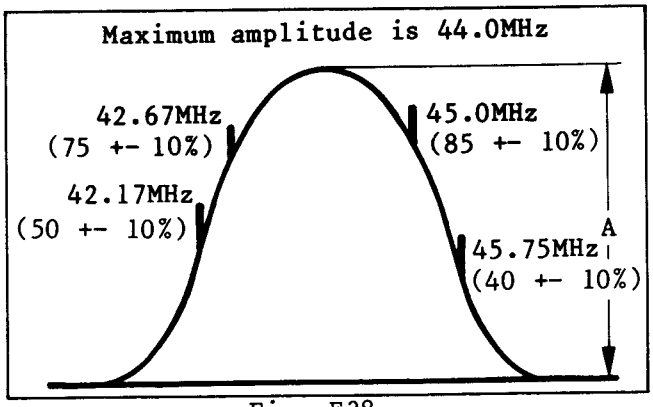


Fig. E38

11. Increase the VIF Sweep Generator output by 25dB.
12. Adjust the output of the DC Power Supply Unit so that the A portion becomes 1.0Vp-p.
13. Confirm that the Sweep output waveform is as shown in Fig. E38.
14. Adjust the VCO (T701) so that the Beat portion is at 45.75MHz marker as shown below.

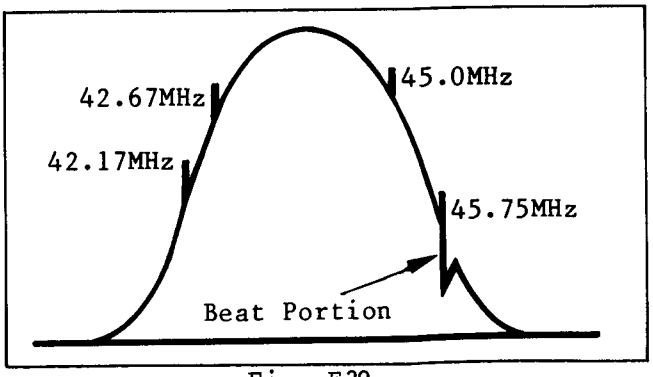


Fig. E39

15. Remove the capacitor.

A-2. VCO Adjustment

1. Adjust DC Power Supply Unit to 0V DC.
2. Connect a 3.3 U-F/25V capacitor between TP702 and GND.
3. Connect the Frequency Counter to TP703 on the TV Demodulator Unit through a Tuning Amp.

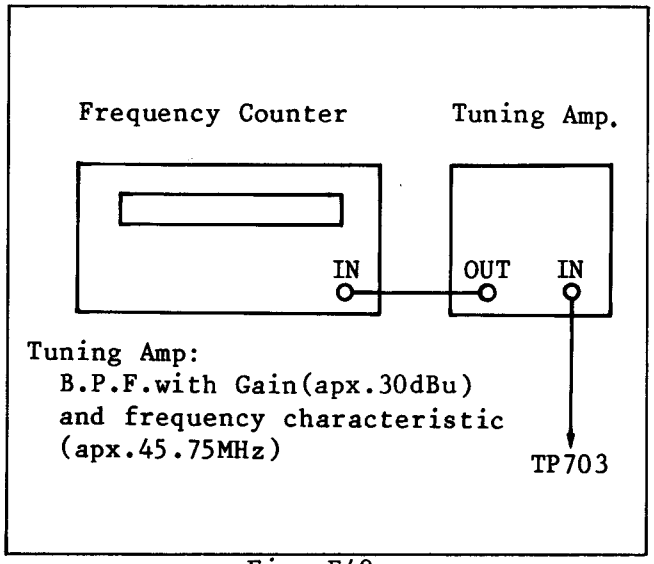


Fig. E40

4. Adjust the VCO (T701) so that the frequency is 45.75MHz (+- 0.02) MHz.
5. Remove the capacitor.

B: Field Adjustment

1. Supply the NTSC standard color bar signal to the RF Input on the rear panel and tune this signal.
2. Connect the scope to TP704 on the TV Demodulator Unit.
3. Adjust the VCO (T701) so that the waveform is as shown below.

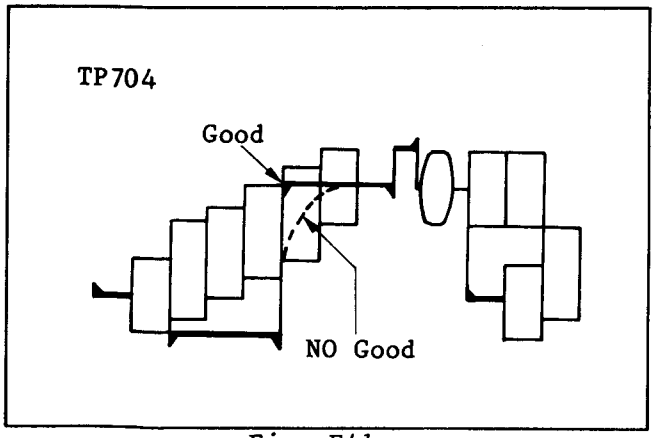


Fig. E41

2-5-2. AFT TANK ADJUSTMENT

Test Point: Tuner Test Point (TP)
Adjustment: T702 (AFT)

1. Tune in a local TV program on Channel 4.
2. Connect the frequency counter to tuner test point on the UHF/VHF Tuner Unit through a 10kΩ resistor and a 10PF capacitor.

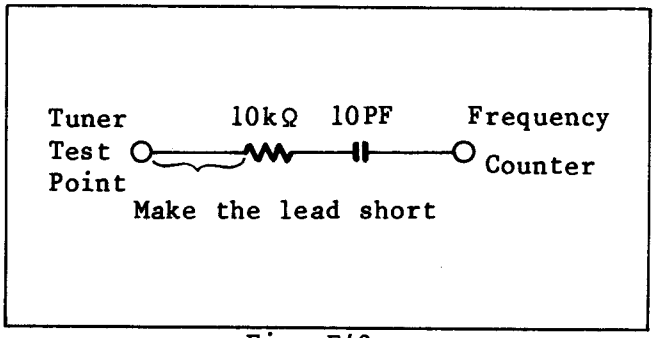


Fig. E42

3. Set the AFT switch on the Tuning Control Unit to "OFF".
4. Adjust the tuning VR on the front panel so that the frequency is 113.00 (+- 0.01) MHz.
5. Set the AFT switch on the Tuning Control Unit to "ON".
6. Adjust the AFT (T702) so that the frequency is 113.00 (+- 0.005) MHz.
7. Remove the frequency counter.

2-5-3. BURST LEVEL ADJUSTMENT

Test Point: Pin 10 of TV Demodulator Unit
Adjustment: R718 (BURST LEVEL)

1. Supply the NTSC standard color bar signal to the RF Input on the rear panel and tune to this signal.
2. Connect the scope to Pin 10 of TV Demodulator Unit.
3. Confirm that the video level at Pin 10 of TV Demodulator Unit is 1.0 (+- 0.2) Vp-p.
4. Adjust the BURST LEVEL (R718) so that the burst level is 22 (+- 1) % of the video level.
5. Confirm that the sync level is more than 24% of video level.

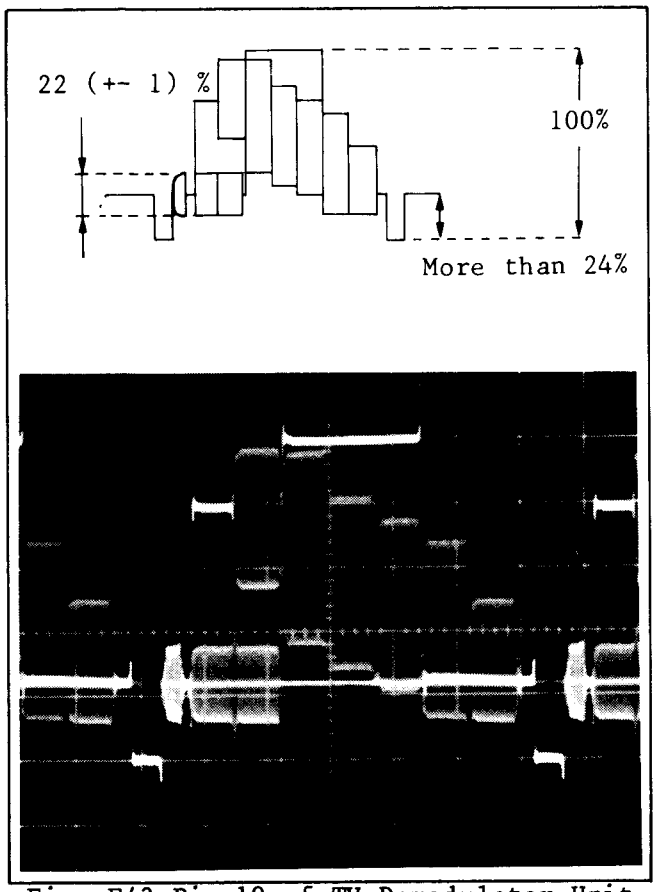


Fig. E43 Pin 10 of TV Demodulator Unit
0.2V/10 u-sec.div.

2-5-4. AUDIO LEVEL ADJUSTMENT

Test Point: Pin 15 of the
TV Demodulator Unit
Adjustment: R715 (AUDIO LEVEL)

1. Supply TV RF signal with audio modulation of 400Hz at 30% to the RF Input on the rear panel.
2. Connect the scope between Pin 15 of the TV Demodulator Unit and GND.
3. Set the AFT switch on the Tuning Control Unit to "ON".
4. Adjust the AUDIO LEVEL (R715) so that the level is 140 (+- 10)mVp-p.

2-5-5. RF AGC ADJUSTMENT

Test Point: TP7001
Adjustment: R7004 (RF AGC)

A: Factory Adjustment

1. Tune in a color bar signal (VHF).
2. Set the AFT switch on the Tining Control Unit to "ON".
3. Set the input level of electric field to 63 (+- 1) dBu.
(Using the Attenuator and Spectrum Analyzer)
4. Connect the scope to TP7001 on the Demodulator Signal Process Section.
5. Turn the RF AGC (R7004) on the Demodulator Signal Process Section fully counterclockwise from foil side.
6. Then slowly turn the RF AGC (R7004) till just before the voltage drops.
7. Change the input electric field from 63 dBu to 66 dBu.
8. Confirm that the voltage at TP7001 has dropped more than 1.0V.

B: Field Adjustment

1. Supply a local TV Signal to the RF Input the rear panel and tune to this signal.
2. Set the AFT switch on the Tuning Control Unit to "ON".
3. Connect the scope to pin 10 of TV Demodulator Unit and GND.
4. Adjust the RF AGC (R7004) so that the H-sync is Maximum and it's shape can be observed clearly.

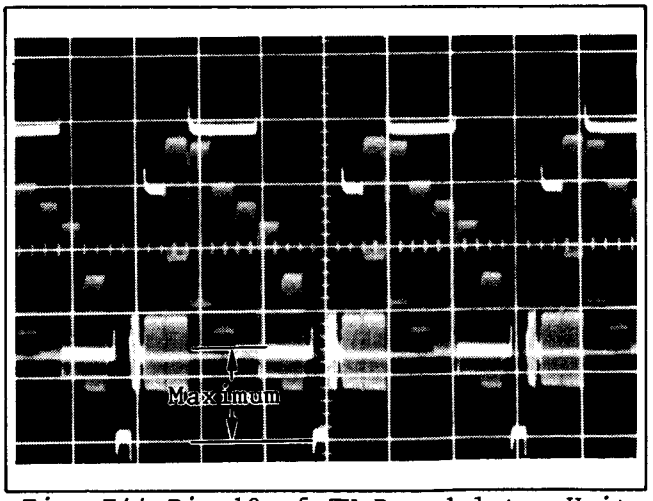


Fig. E44 Pin 10 of TV Demodulator Unit
0.2V/20 u-sec. div.

5. Confirm that the noise band and beat does not appear on the TV screen.

Note:
This procedure is just a simplified method. So use the factory Adjustment for a more accurate or interchangeable adjustment.

2-6. IR WIRELESS RECEIVING DETECTOR SECTION

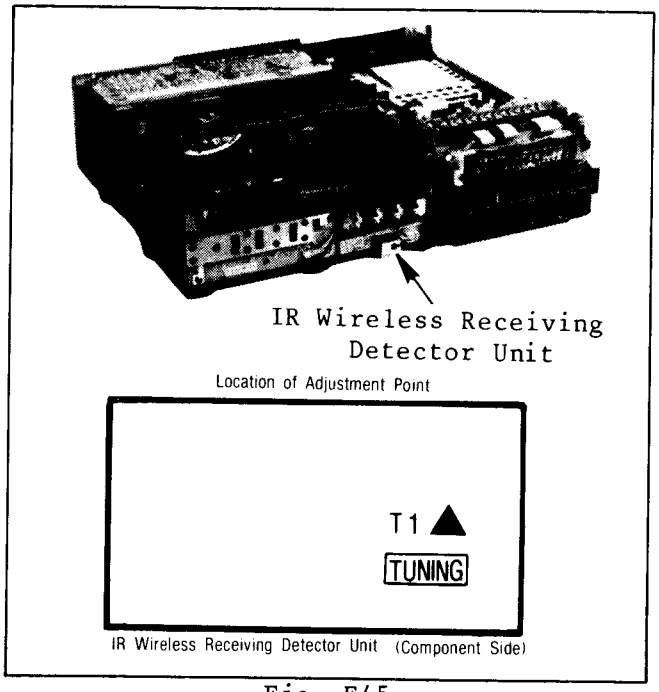


Fig. E45

2-6-1. TUNING ADJUSTMENT

Test Point : Pin 3 of P6004
Adjustment : T1 (TUNING)

1. First, place the deck so that the left side faces down. Hold the deck with your hand and then remove 2 red screws (A) and 2 screws (B), and remove the Front Frame Support Angle from the unit.

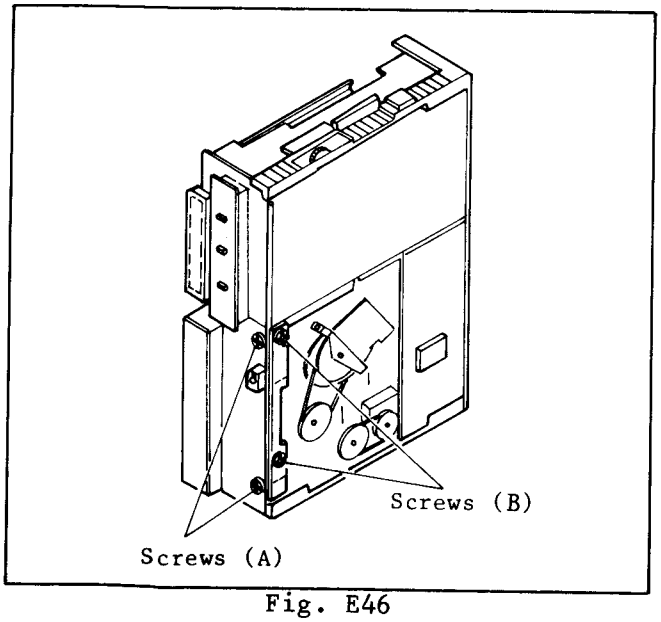


Fig. E46

2. Place the deck in the normal operating position. And then take out the IR Wireless Receiving Detector Unit from the Unit.
3. Place the IR Wireless Transmitter Unit and the Unit as shown in Fig. E47.

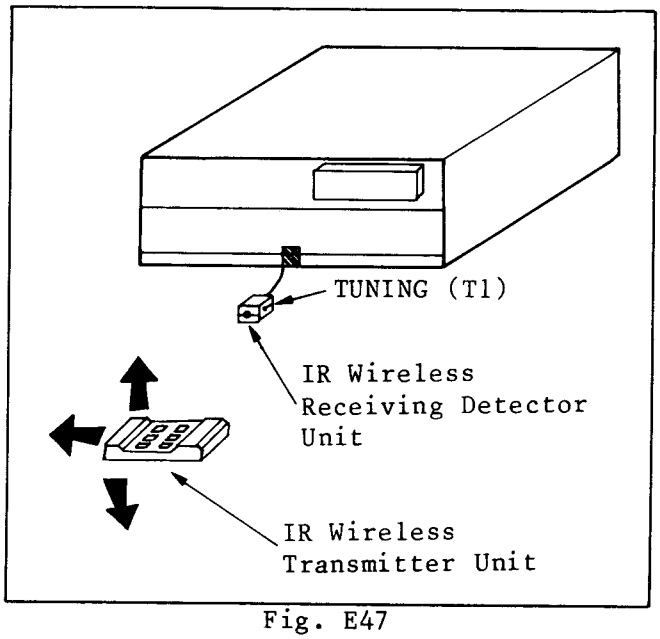


Fig. E47

4. Place the Unit in the stop mode.
5. Connect the scope to P3 of P6004 on the System Control Section.
6. Change the direction of the IR Wireless Transmitter Unit gradually with pushing the stop button on the IR Wireless Transmitter Unit until the waveform on the scope is just begins to be disturbed as shown below.

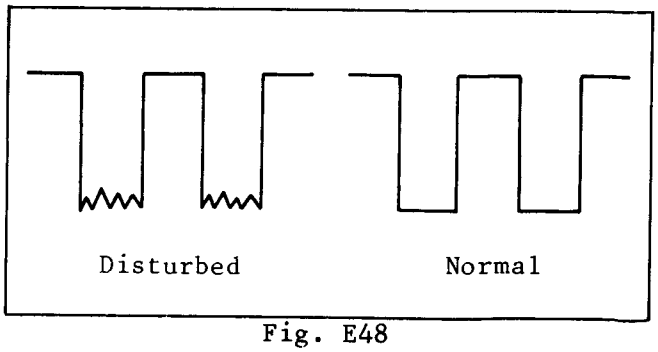
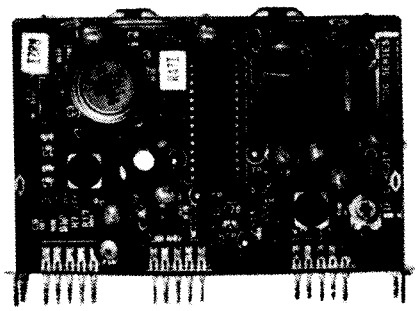


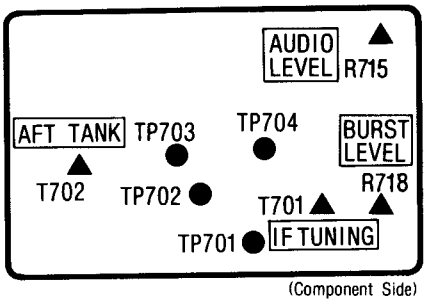
Fig. E48

7. Adjust the TUNING (T1) on the IR Wireless Receiving Detector Unit continuing the condition of item 6 so that the waveform at Pin 3 of P6004 is best (i.e. least disturbance possible).
8. Return the IR Wireless Receiving Detector Unit to the Unit.
9. Remove the scope.

TV Demodulator Unit

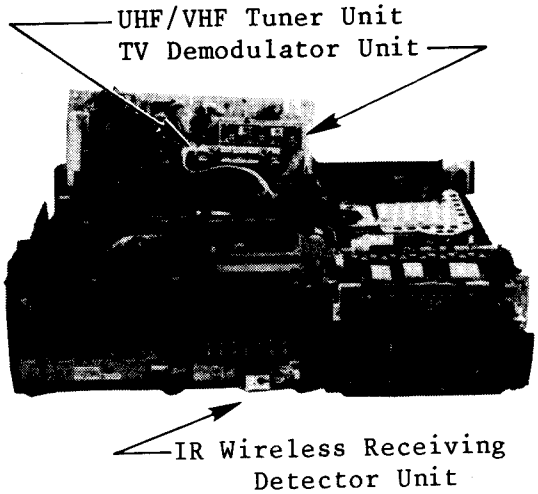
VEQS0257

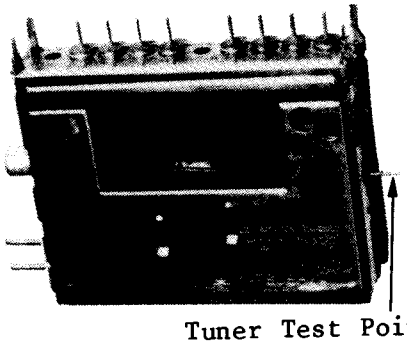


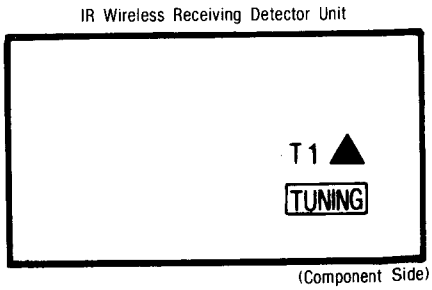


UHF /VHF Tuner Unit **TNV56751F2R**

IR Wireless Receiving Detector Unit VEQS0285 /VEQS0293 (PV-1530)

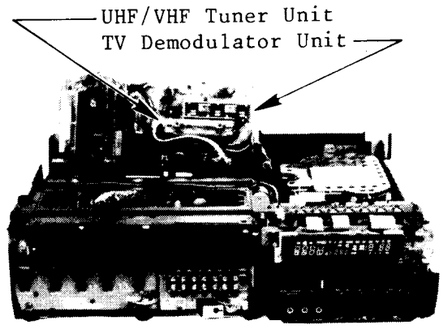




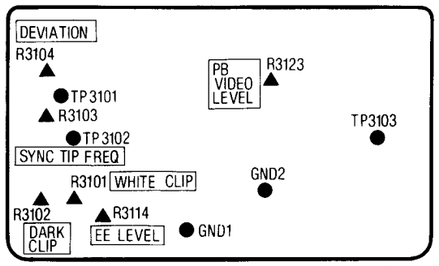


Location of Test Points and Adjustment Points

Luminance C.B.A. **VEPS0337A**
Chrominance C.B.A. **VEPS0806A**
Head Amp Unit **VEPS0508A1**

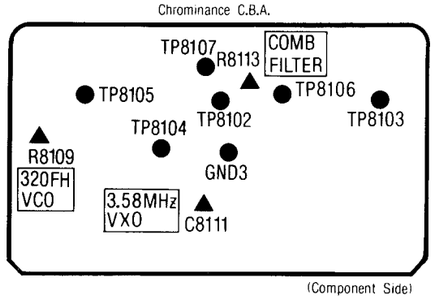


Luminance C.B.A.



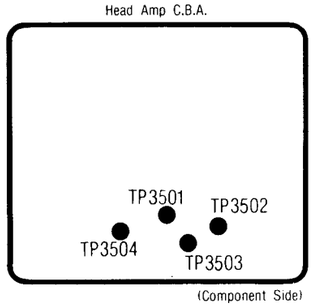
(Component Side)

Chrominance C.B.A.



(Component Side)

Head Amp C.B.A.

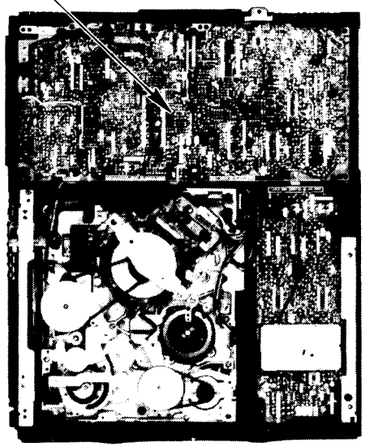


(Component Side)

Servo /Sub Audio /System Control C.B.A. **VEPS0249B1** **(PV-1530)**

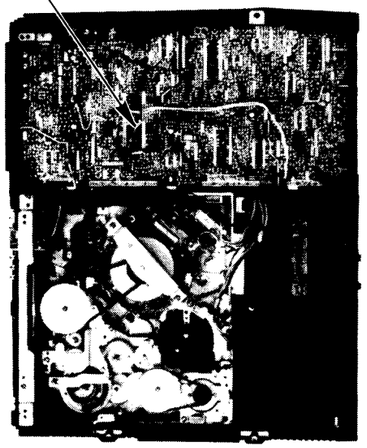
Servo /Audio /System Control C.B.A. **VEPS0250H1** **(PV-1525)**

Servo /Sub Audio /System Control C.B.A.



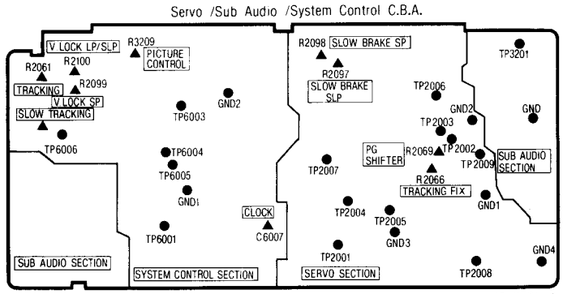
(PV-1530)

Servo /Audio /System Control C.B.A.



(PV-1525)

Servo /Sub Audio /System Control C.B.A.



(Foil Side)

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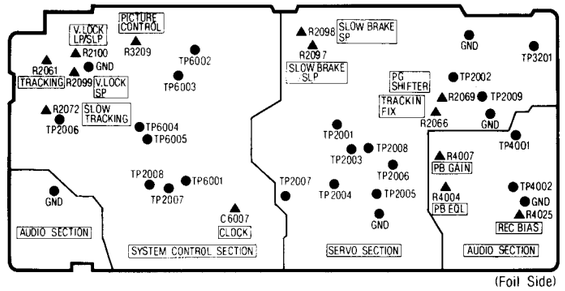
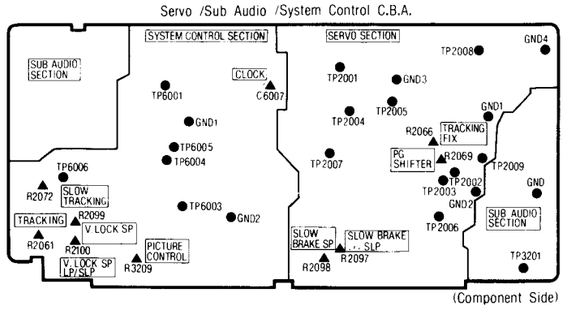


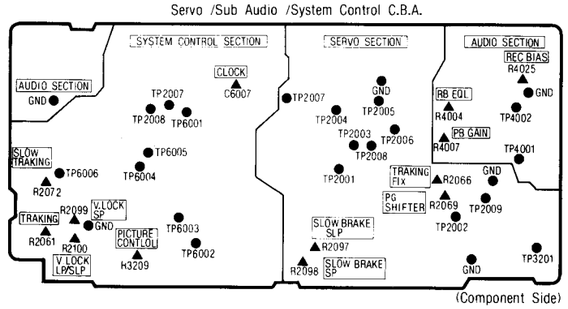
(Foil Side)

Servo /Sub Audio /System Control C.B.A.



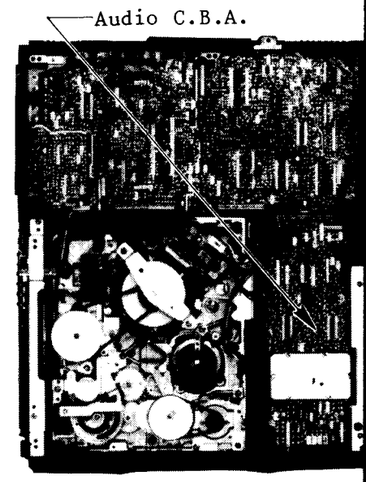
(Component Side)

Servo /Sub Audio /System Control C.B.A.

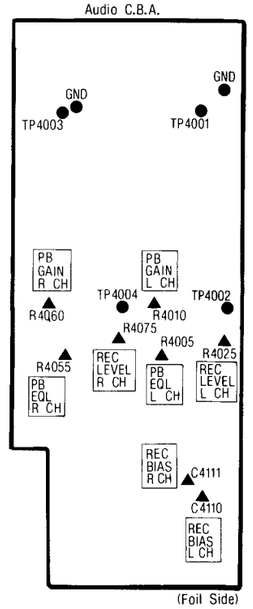


(Component Side)

Audio C.B.A. **VEPS0422A1**

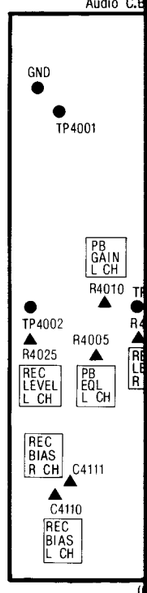


Audio C.B.A.

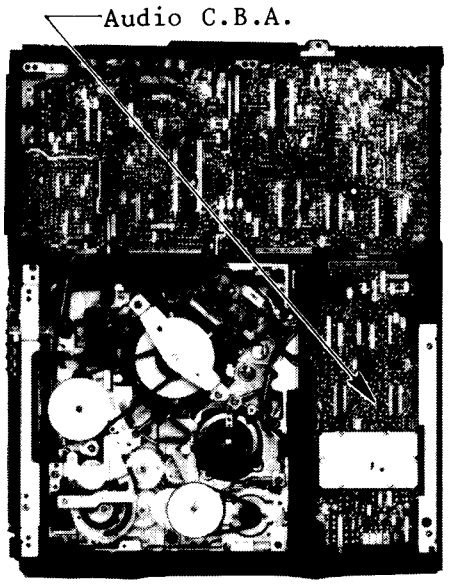


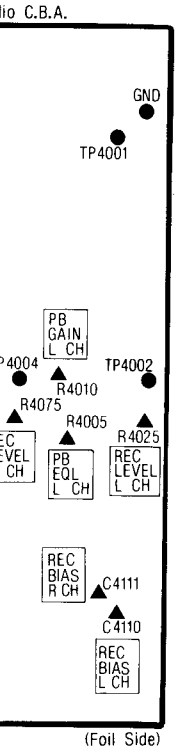
(Foil Side)

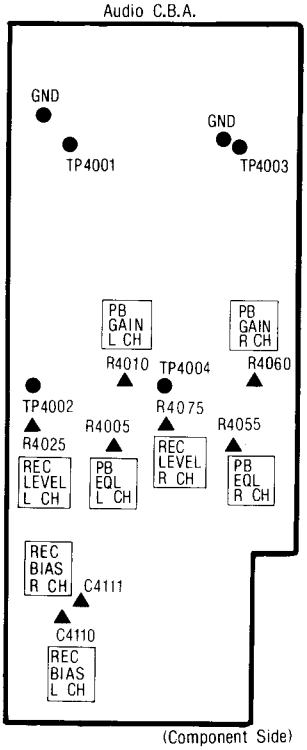
Audio C.B.A.



.B.A. VEPS0422A1 (PV-1530)

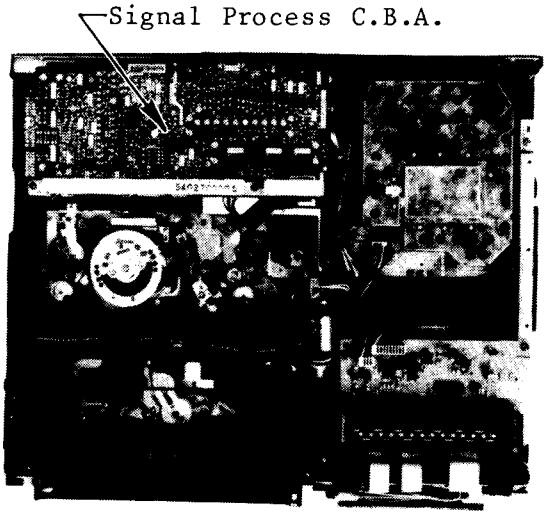


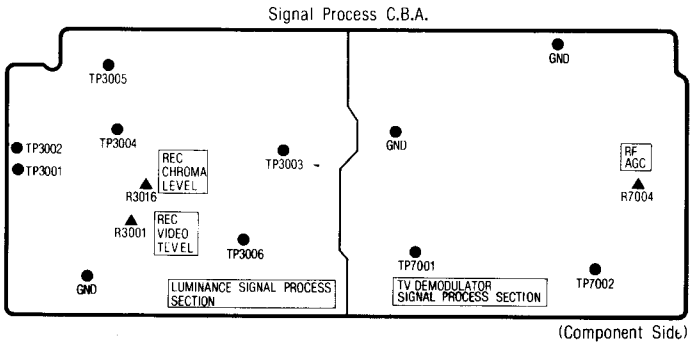




Signal Process C.B.A. VEPS0344B1 (PV-1530)

VEPS0344B2 (PV-1525)





ORDER NO. VRD-8404-569
B3

Service Manual

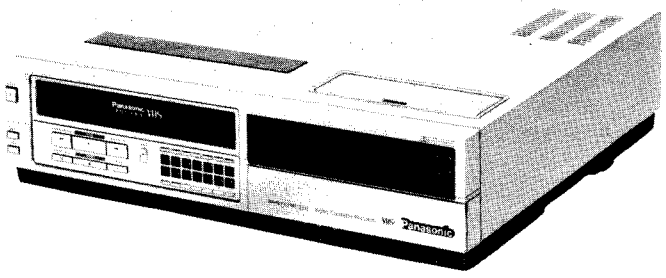
Video Cassette Recorder

Vol. 3

Panasonic Omnivision VHS

Block Diagrams

PV-1530
PV-1525



SPECIFICATIONS

Power Source:	120V AC ±10%, 60Hz ±0.5%
'ower Consumption:	Approx. 22 watts
Television System:	EIA Standard (525 lines, 60 fields) NTSC color signal
Video Recording System:	4 rotary heads, helical scanning system Luminance: FM azimuth recording Color signal: Converted subcarrier phase shift recording
Audio Track:	2 track (PV-1525: 1 track)
Tape Format:	Tape width 1/2" (12.7mm), high density tape
Tape Speed:	SP mode: 1-5/16 i.p.s. (33.35mm/s) LP mode: 21/32 i.p.s. (16.67mm/s) SLP mode: 7/16 i.p.s. (11.12mm/s)
Record/Playback Time:	8 HRS. with 160 min. type tape used in SLP mode
FF/REW Time:	Less than 6 min. with 120 min. type tape
Heads:	Video: 4 rotary heads Audio/Control: 2 stationary head (PV-1525: 1 stationary head) Erase: 1 full track erase 1 audio track erase
Input Level:	Video: VIDEO IN Jack (RCA type) 1.0Vp-p, 75Ω unbalanced Audio: AUDIO IN Jack (RCA type) (Right, Left) −20dB, 50kΩ unbalanced MIC IN jack (M6) (Right, Left) −70dB, 4kΩ unbalanced PV-1525: MIC IN jack (M3) −70dB, 4kΩ unbalanced TV Tuners: VHF Input: VHF Ch2-Ch13, cable channels "A"~"W", "A-2", "A-1" 75Ω unbalanced UHF Input: Ch14-Ch83, 300Ω balanced
Output Level:	Video: VIDEO OUT Jack (RCA type) 1.0Vp-p, 75Ω unbalanced Audio: AUDIO OUT Jack (RCA type) (Right, Left) −9dB, 1kΩ unbalanced PV-1525: −6dB, 600Ω unbalanced RF Modulated: Ch3/Ch4 switchable, 72dBμ, (Open Voltage) 75Ω unbalanced
Video Horizontal Resolution:	Color: more than 230 lines B/W: more than 230 lines
Audio Frequency Response: (10dB down)	SP mode: 100Hz~8kHz LP mode: 100Hz~6kHz SLP mode: 150Hz~5kHz
Signal-to-Noise Ratio:	Video: SP mode: better than 41dB LP mode: better than 41dB SLP mode: better than 41dB (Rohde & Schwarz noise meter) Audio: SP mode: better than 42dB LP mode: better than 40dB SLP mode: better than 40dB
Operation Temperature:	41°F—104°F (5°C—40°C)
Operating Humidity:	10%—75%
Weight:	16.8 lbs. (7.6kg) PV-1525: 15.7 lbs. (7.1kg)
Dimensions:	16-15/16"(W)×14-5/16"(D)×4-1/4"(H) (430mm×364mm×108mm)
Accessories Supplied:	• Remote control unit (PV-1525) • Wireless Remote control unit (PV-1530) • VHF connecting cable • 300Ω—75Ω transformer • Twin-lead cable • V-Lock Tool
Available Tapes:	1/2" VHS video cassette tapes NV-T160 Approx. 1073ft. (327m), 160, 320, or 480 min. NV-T120 Approx. 810ft. (247m), 120, 240, or 360 min. NV-T60 Approx. 417ft. (127m), 60, 120, or 180 min.

Weight and dimensions shown are approximate.

Specifications are subject to change without notice.

Panasonic®

Matsushita Engineering & Service Company
Division of Matsushita Electric
Corporation of America
50 Meadowland Parkway, Secaucus,
New Jersey 07094

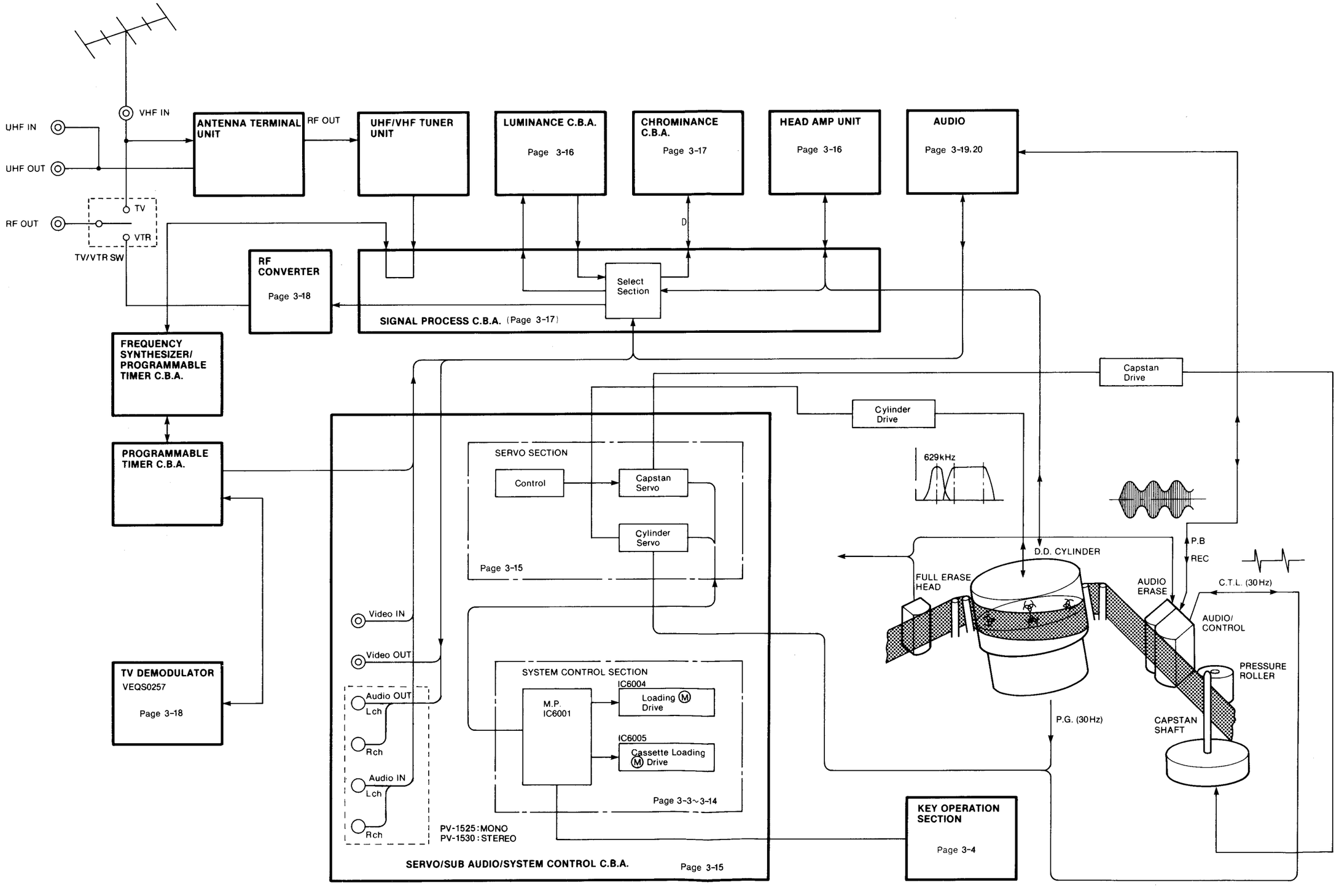
Panasonic Hawaii Inc.
91-238 Kauhi St. Ewa Beach
P.O. Box 774
Honolulu, Hawaii 96808-0774

Matsushita Electric
of Canada Limited
5770 Ambler Drive, Mississauga,
Ontario, L4W 2T3

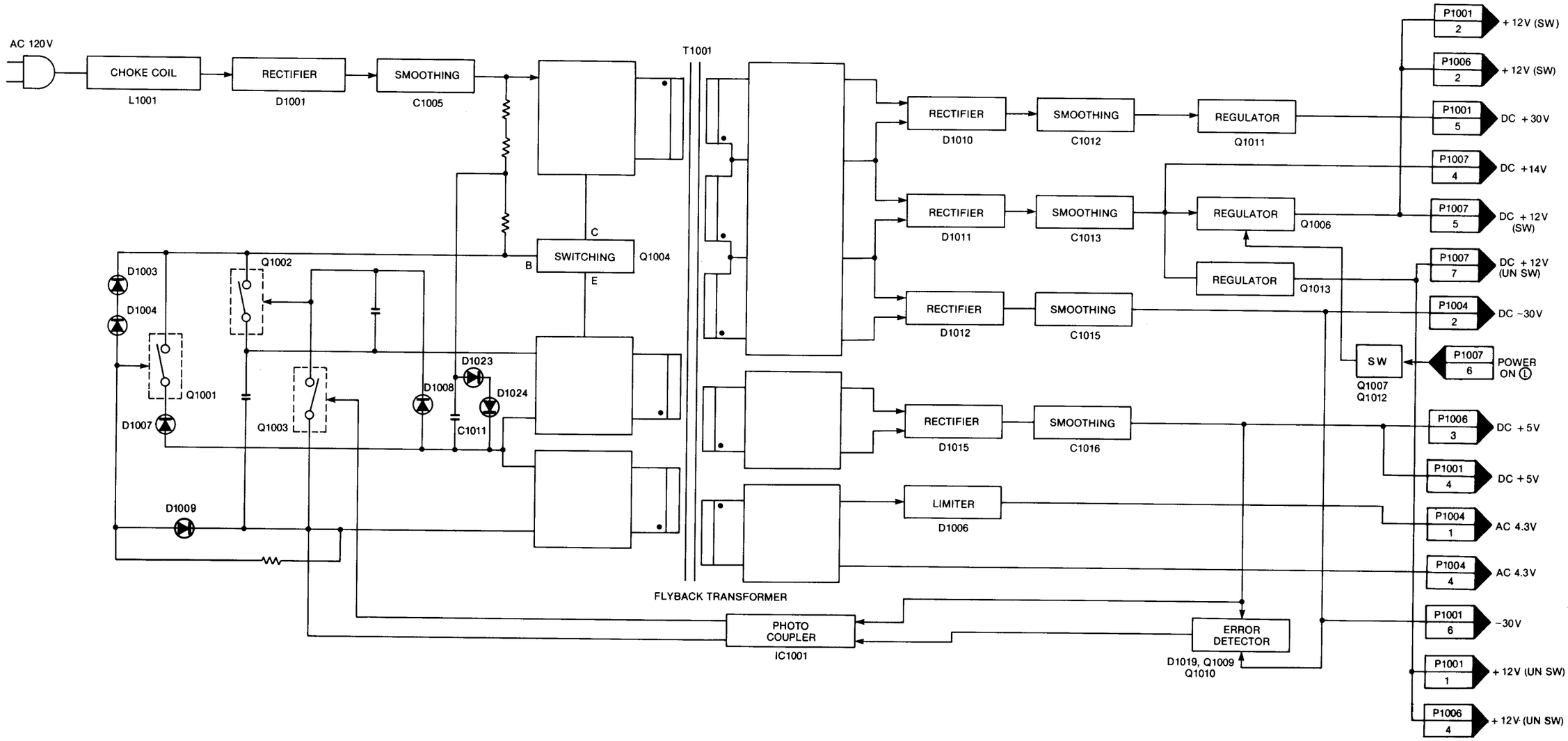
Panasonic Sales Company,
Division of Matsushita Electric
of Puerto Rico, Inc.
Ave, 65 De Infanteria, KM 9.7
Victoria Industrial Park
Carolina, Puerto Rico 00630

CONTENTS

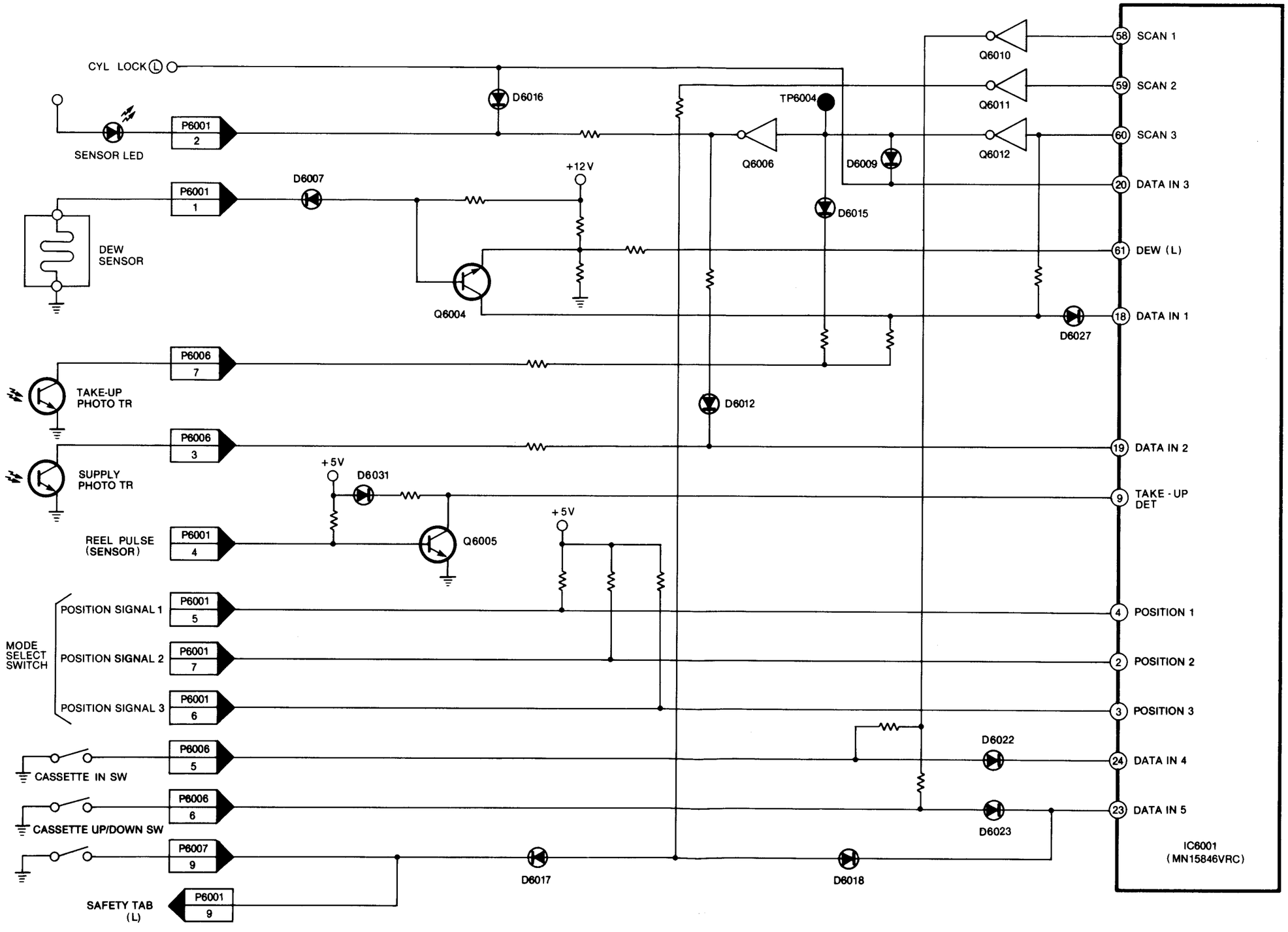
OVERALL BLOCK DIAGRAM



POWER SUPPLY BLOCK DIAGRAM

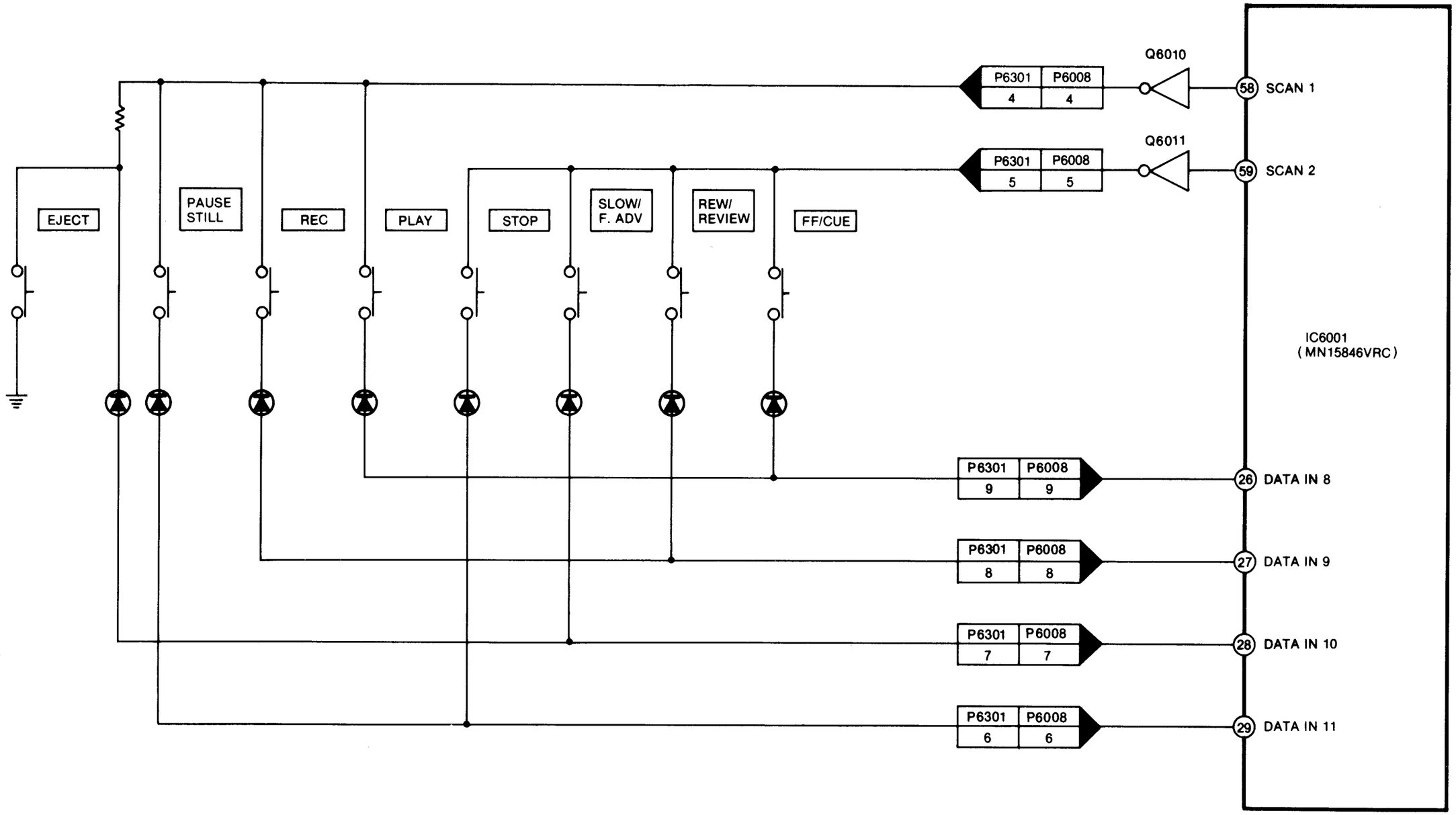


SAFETY DEVICE BLOCK DIAGRAM (SYSTEM CONTROL)

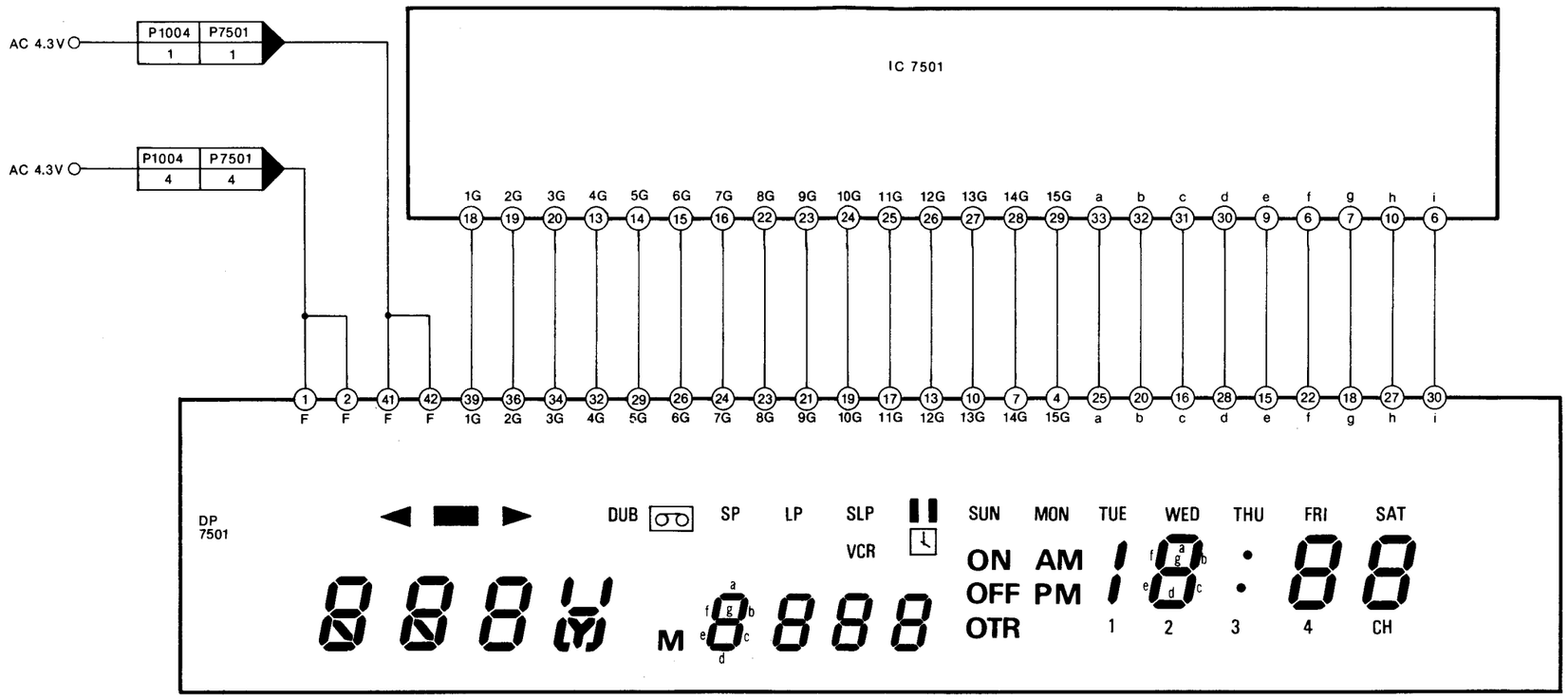


3—3

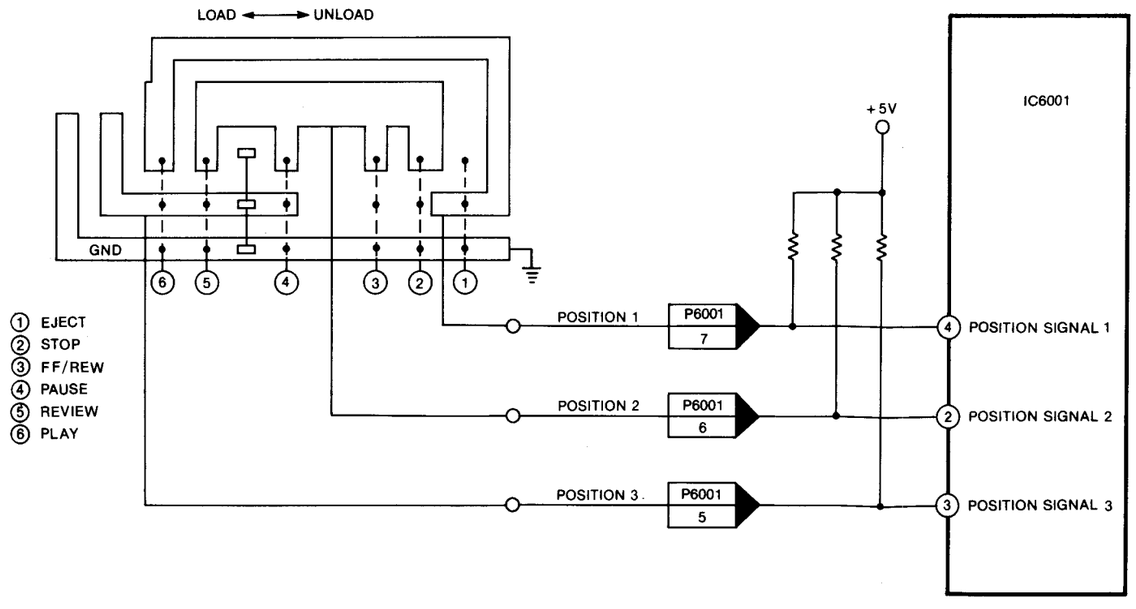
KEY MATRIX BLOCK DIAGRAM (SYSTEM CONTROL)



FIP DRIVE BLOCK DIAGRAM (SYSTEM CONTROL)



MODE SELECT SWITCH BLOCK DIAGRAM (SYSTEM CONTROL)



SERIAL DATA TRANSMISSION (SYSTEM CONTROL)

1. Data Transmission 1 (Operational Information)

DATA NO.	OPERATION
(1)	"0" } TRANSMISSION CODE
(2)	"0" }
(3)	E-E ("0")/V-V ("1")
(4)	PAUSE/FLASH ("1")
(5)	} OPERATION INFORMATION CODE
(6)	
(7)	
(8)	

Data Transmission of Operational Information

DATA NO. (5)	(6)	(7)	(8)	INFORMATION	DATA NO. (5)	(6)	(7)	(8)	INFORMATION
0	0	0	0	UNDER CUT	1	0	0	0	FF
0	0	0	1	A. DUB	1	0	0	1	REW
0	0	1	0	F. ADV	1	0	1	0	DEW
0	0	1	1	REVIEW	1	0	1	1	STOP
0	1	0	0	CUE	1	1	0	0	EJECT
0	1	0	1	PLAY	1	1	0	1	STOP
0	1	1	0	SLOW	1	1	1	0	ALL OFF
0	1	1	1	REC	1	1	1	1	POWER OFF

Data Transmission 1 (Operational Information)

2. Data Transmission 2 (Counter Number Information)

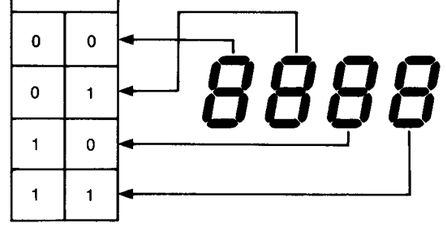
DATA NO.	OPERATION
(1)	"1" } TRANSMISSION CODE
(2)	MEMORY ON ("1")/OFF ("0")
(3)	} COUNTER BLOCK NO.
(4)	
(5)	} COUNTER NUMBER INFORMATION
(6)	
(7)	
(8)	

Data Transmission of Counter Number Information

DATA NO. (5)	(6)	(7)	(8)	INFORMATION	DATA NO. (5)	(6)	(7)	(8)	INFORMATION
0	0	0	0	0	0	1	0	1	5
0	0	0	1	1	0	1	1	0	6
0	0	1	0	2	0	1	1	1	7
0	0	1	1	3	1	0	0	0	8
0	1	0	0	4	1	0	0	1	9

Data Transmission 2 (Counter Number Information)

DATA NO. (3)	(4)
0	0
0	1
1	0
1	1



Counter Position Code

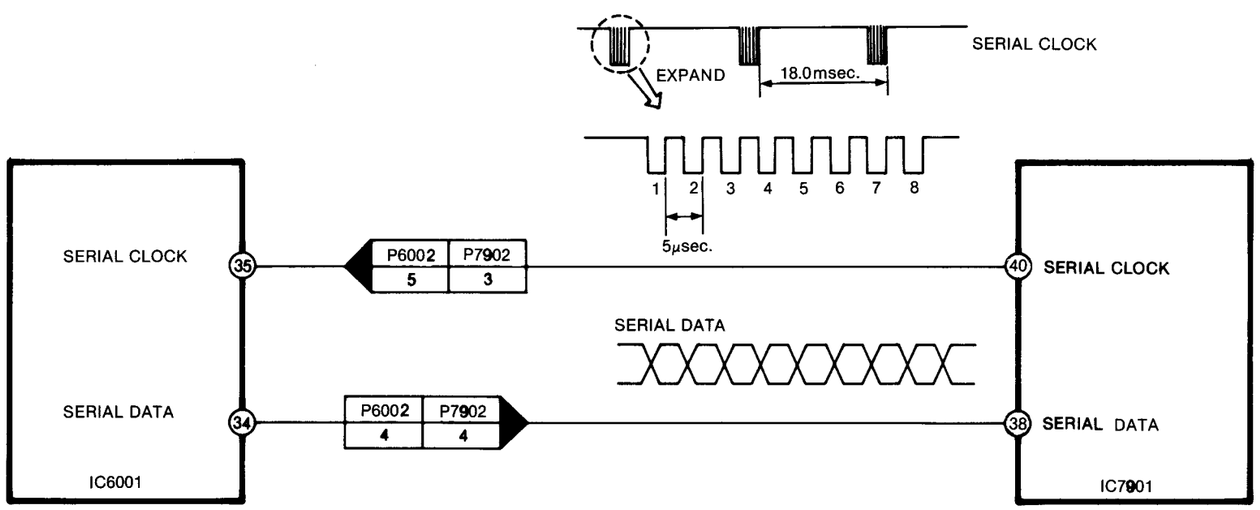
3. Data Transmission 3 (Tape Speed Information)

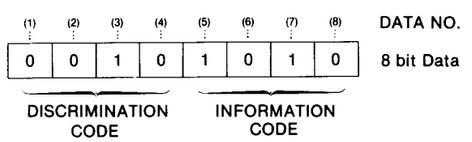
DATA NO.	OPERATION
(1)	"1" } TRANSMISSION CODE
(2)	"0" }
(3)	"0"
(4)	MEMORY ("1")/ERASE ("0")
(5)	} TAPE SPEED DATA INFORMATION CODE
(6)	
(7)	
(8)	

Data Transmission of Tape Speed Data Information

DATA NO. (5)	(6)	(7)	(8)	INFORMATION
1	1	0	0	SP
1	1	0	1	LP
1	1	1	0	SLP

Data Transmission 3 (Tape Speed Information)





8 bit Information Data

IC6001 (MN15846VRC) I/O CHART

PIN	I/O	NAME/OPERATION		
1	—	GND		
2	I	POSITION SIGNAL 2		
3	I	POSITION SIGNAL 3		
4	I	POSITION SIGNAL 1		
5	—	GND		
6	I	TIMER SET (H)		
7	I	TIMER REC (H)		
8	—	NOT USED		
9	I	REEL SENSOR		
10	I	CLOCK (349kHz)		
11	I	SIRQ		
12	I	IRQ		
13	I	SERIAL CLOCK		
14	O	SERIAL DATA		
15	I	SBI		
16	I	RESET (L)		
17	I	V REF (1)		
18	I	DATA IN 1	(H)/(L)	OPERATION
			(H) (M)	TAKE UP PHOTO TR DEW SENSOR
19	I	DATA IN 2	(H)/(L)	OPERATION
			(H) (M)	SUPPLY PHOTO TR REMOTE PAUSE
20	I	DATA IN 3	(H)/(L)	OPERATION
			(L)	CYL LOCK
21	I	V REF		
22	—	GND		
23	I	DATA IN 5	(H)/(L)	OPERATION
			(H) (M)	SAFETY TAB SW CASSETTE UP/DOWN SW
24	I	DATA IN 6	(H)/(L)	OPERATION
			(H) (L)	SLP CASSETTE IN SW
25	I	DATA IN 7	(H)/(L)	OPERATION
			(H)	LP/SLP
26	I	DATA IN 8	SCAN PULSE	OPERATION
			SCAN 1 SCAN 2	PLAY KEY FF KEY
27	I	DATA IN 9	SCAN PULSE	OPERATION
			SCAN 1 SCAN 2	REC KEY REW KEY
28	I	DATA IN 10	SCAN PULSE	OPERATION
			SCAN 1 SCAN 2	EJECT KEY SLOW KEY

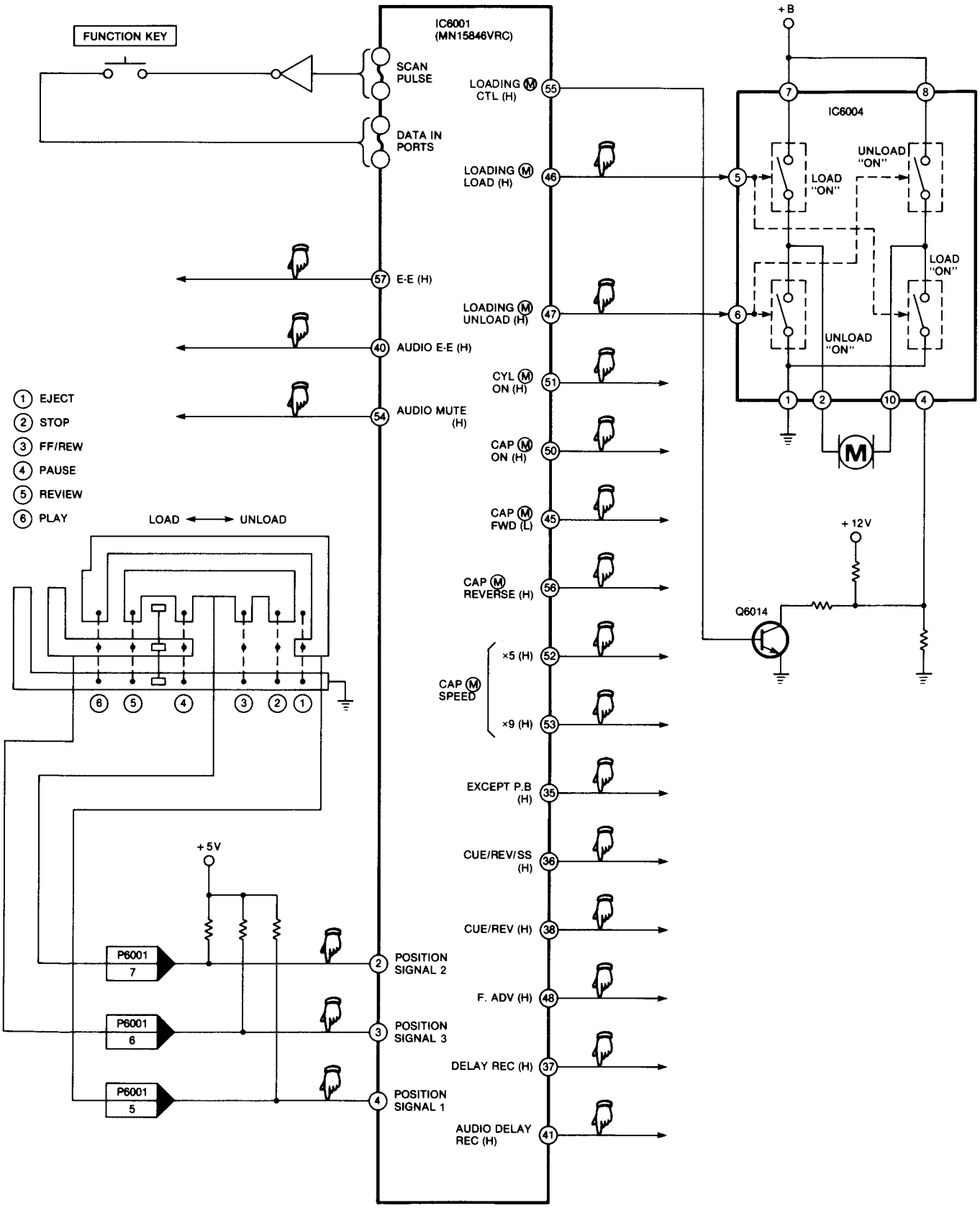
PIN	I/O	NAME/OPERATION		
29	I	DATA IN 11	SCAN PULSE	OPERATION
			SCAN 1	PAUSE KEY
			SCAN 2	STOP KEY
30	I	IR REMOTE CONTROLLER DATA (1)		
31	I	IR REMOTE CONTROLLER DATA (2)		
32	I	IR REMOTE CONTROLLER DATA (3)		
33	I	IR REMOTE CONTROLLER DATA (4)		
34	O	POWER ON (L)		
35	O	EXCEPT PLAY (H)		
36	O	CUE/REVIEW/SLOW/STILL (H)		
37	O	DELAY REC (H)		
38	O	CUE/REVIEW (H)		
39	O	LP CUE/REV		
40	O	AUDIO EE (H)		
41	O	AUDIO DELAY REC (H)		
42	O	CASSETTE LOADING MOTOR LOAD (H)		
43	O	CASSETTE LOADING MOTOR UNLOAD (H)		
44	O	SP MEMORY (H)		
45	O	CAP MOTOR FORWARD (L)		
46	O	LOADING MOTOR LOAD (H)		
47	O	LOADING MOTOR UNLOAD (H)		
48	O	F. ADV (H)		
49	O	SPEED MEMORY (L)		
50	O	CAP MOTOR ON (H)		
51	O	CYL MOTOR ON (H)		
52	O	CAP SPEED DATA X5 (H)		
53	O	CAP SPEED DATA X9 (H)		
54	O	AUDIO MUTE (H)		
55	O	LOADING MOTOR SPEED CONTROL		
56	O	CAP REVERSE (H)		
57	O	EE (H)		
58	O	SCAN 1		
59	O	SCAN 2		
60	O	SCAN 3/SENSOR LED		
61	I	DEW (L)		
62	I	OSC 1		
63	I	OSC 2		
64	I	VDD		

IC7501 (UPD7538C-02) I/O CHART

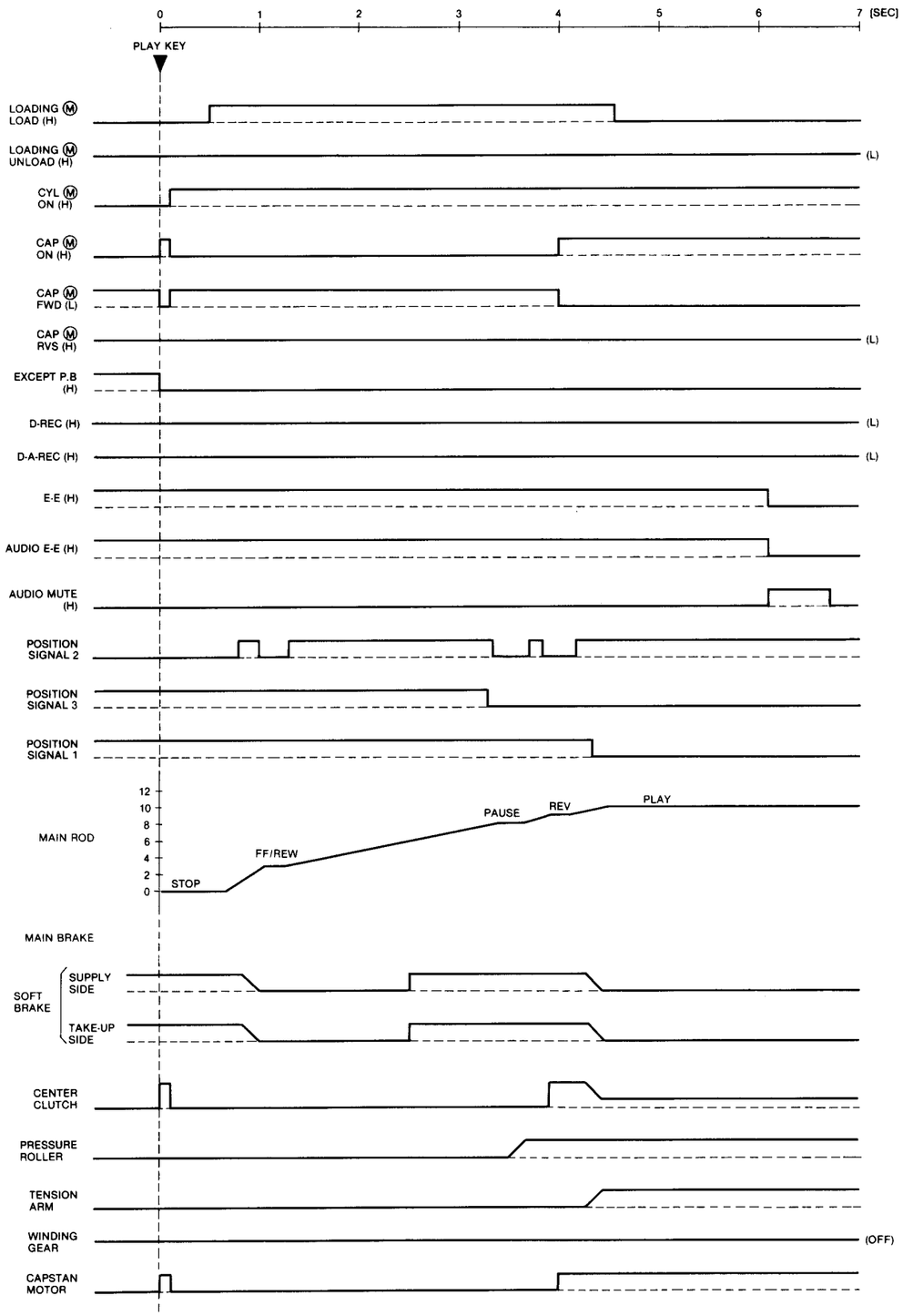
PIN	I/O	NAME/OPERATION
1	I	RESET
2	I	OSC 1
3	I	OSC 2
4	I	V PRE
5	I	V LOAD
6	O	SEGMENT i
7	O	SEGMENT g
8	O	SEGMENT f
9	O	SEGMENT e
10	O	SEGMENT h
11	O	TIME REC (H)
12	O	TIMER SET (H)
13	O	GRID 4G
14	O	GRID 5G
15	O	GRID 6G
16	O	GRID 7G
17	I	DATA IN
18	O	GRID 1G
19	O	GRID 2G
20	O	GRID 3G
21	I	VDD
22	O	GRID 8G
23	O	GRID 9G
24	O	GRID 10G
25	O	GRID 11G
26	O	GRID 12G
27	O	GRID 13G
28	O	GRID 14G
29	O	GRID 15G
30	O	SEGMENT d
31	O	SEGMENT c
32	O	SEGMENT b
33	O	SEGMENT a
34	O	TV/VCR
35	O	CH DOWN
36	O	CH UP
37	O	CH LOCK (L)
38	I	SERIAL DATA
39	—	NOT USED
40	O	SERIAL CLOCK
41	I	349kHz
42	—	GND

GRID SIGNAL	OPERATION
GRID 1G	TV/VCR SW
GRID 2G	TIMER SET KEY
GRID 6G	TIMER SELECT KEY
GRID 7G	SAFETY TAB SW
GRID 9G	CH DOWN
GRID 10G	TIMER MODE KEY
GRID 11G	OTR KEY
GRID 13G	CH UP
GRID 14G	RETURN KEY
GRID 15G	TIMER ON/OFF KEY

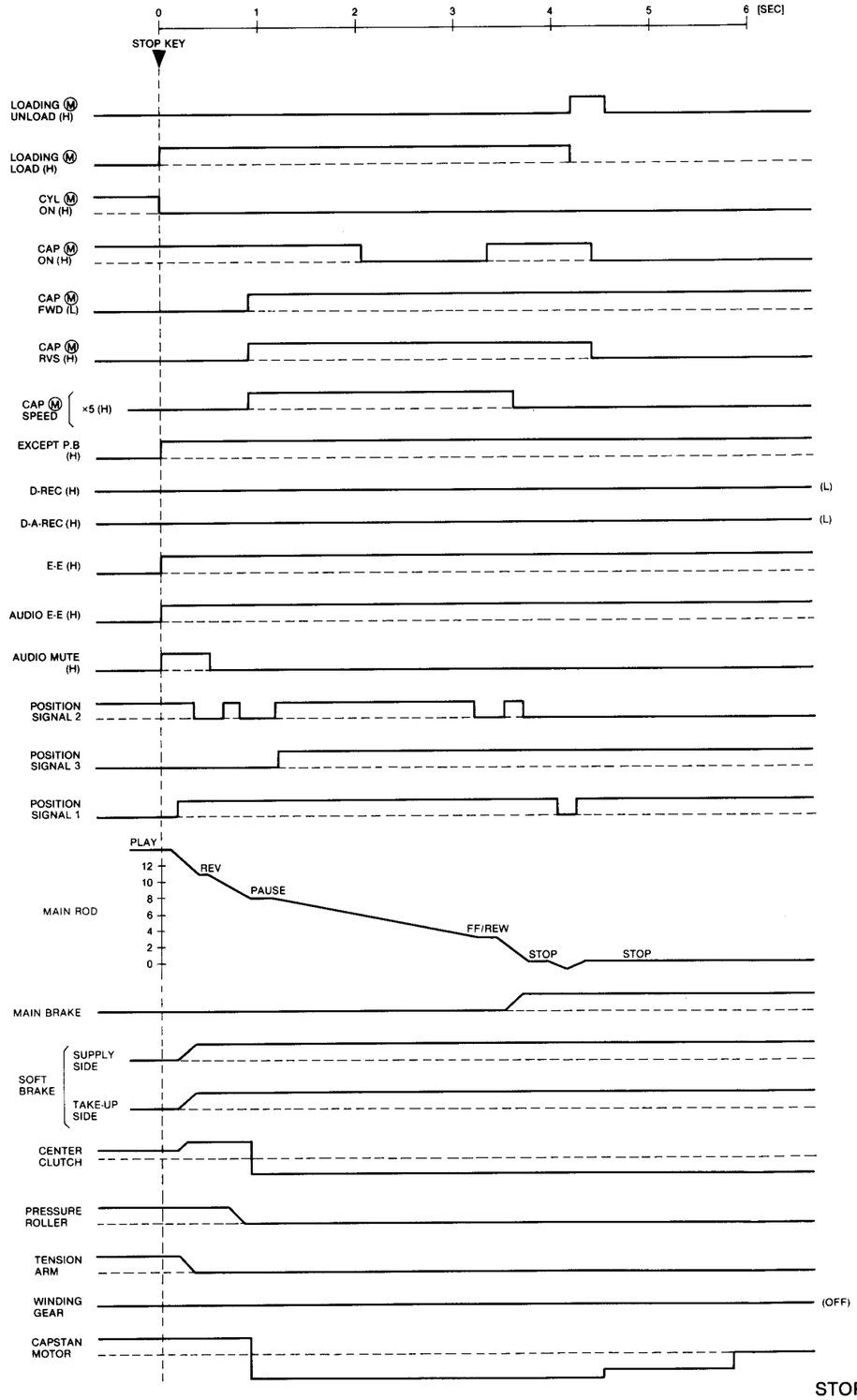
MODE BY MODE BLOCK DIAGRAM (SYSTEM CONTROL)



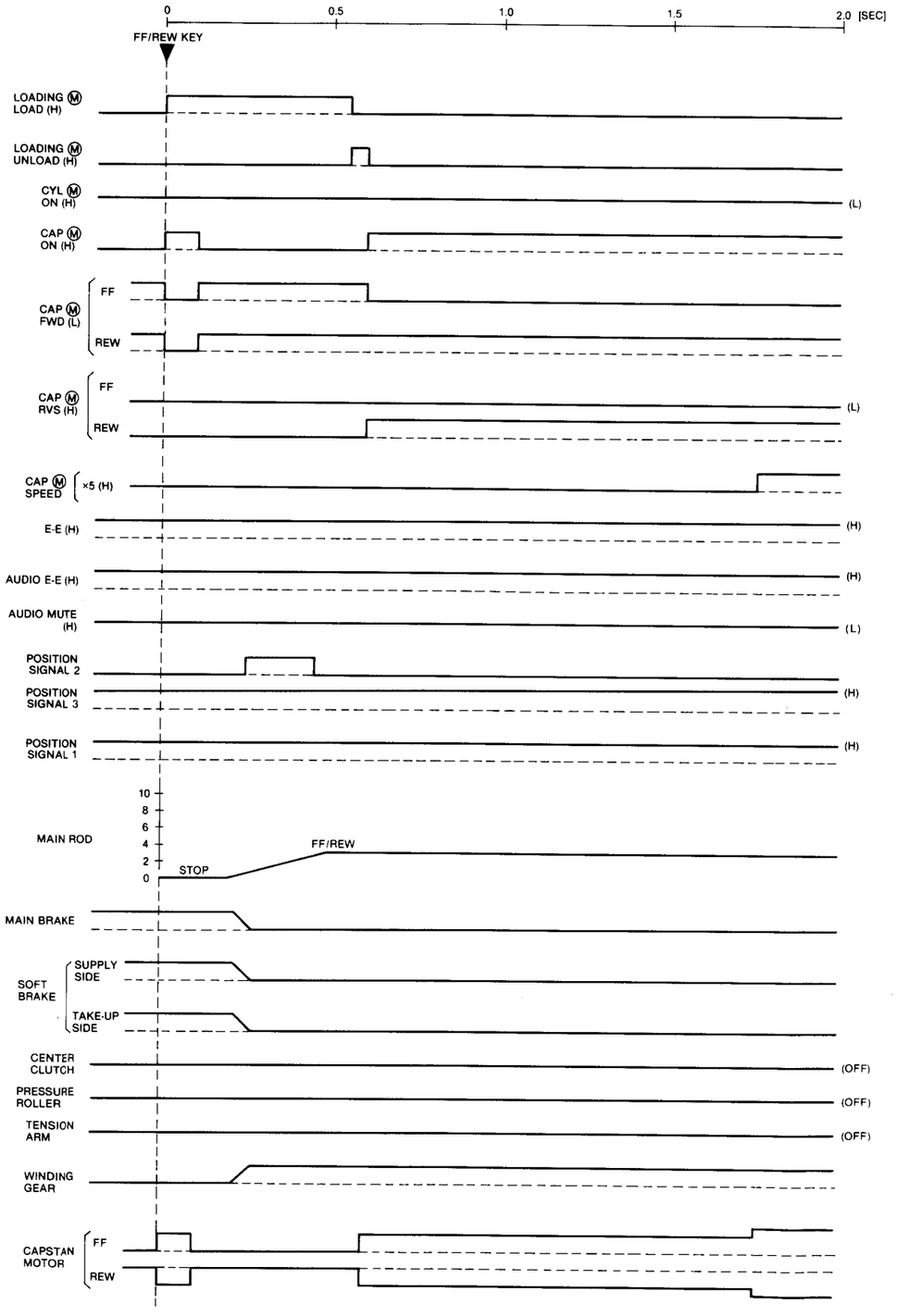
STOP → PLAY MODE TIMING CHART



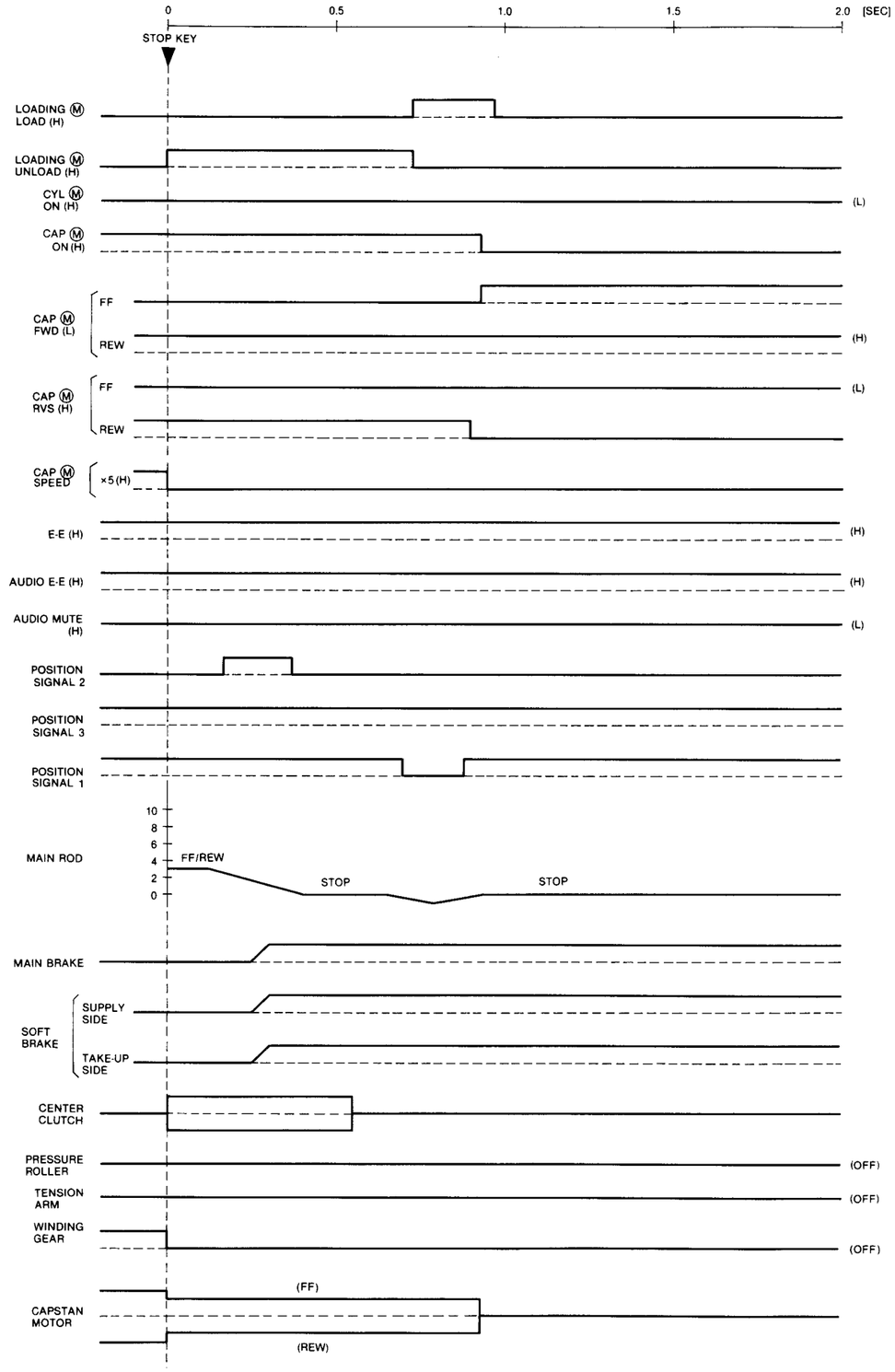
PLAY → STOP MODE TIMING CHART



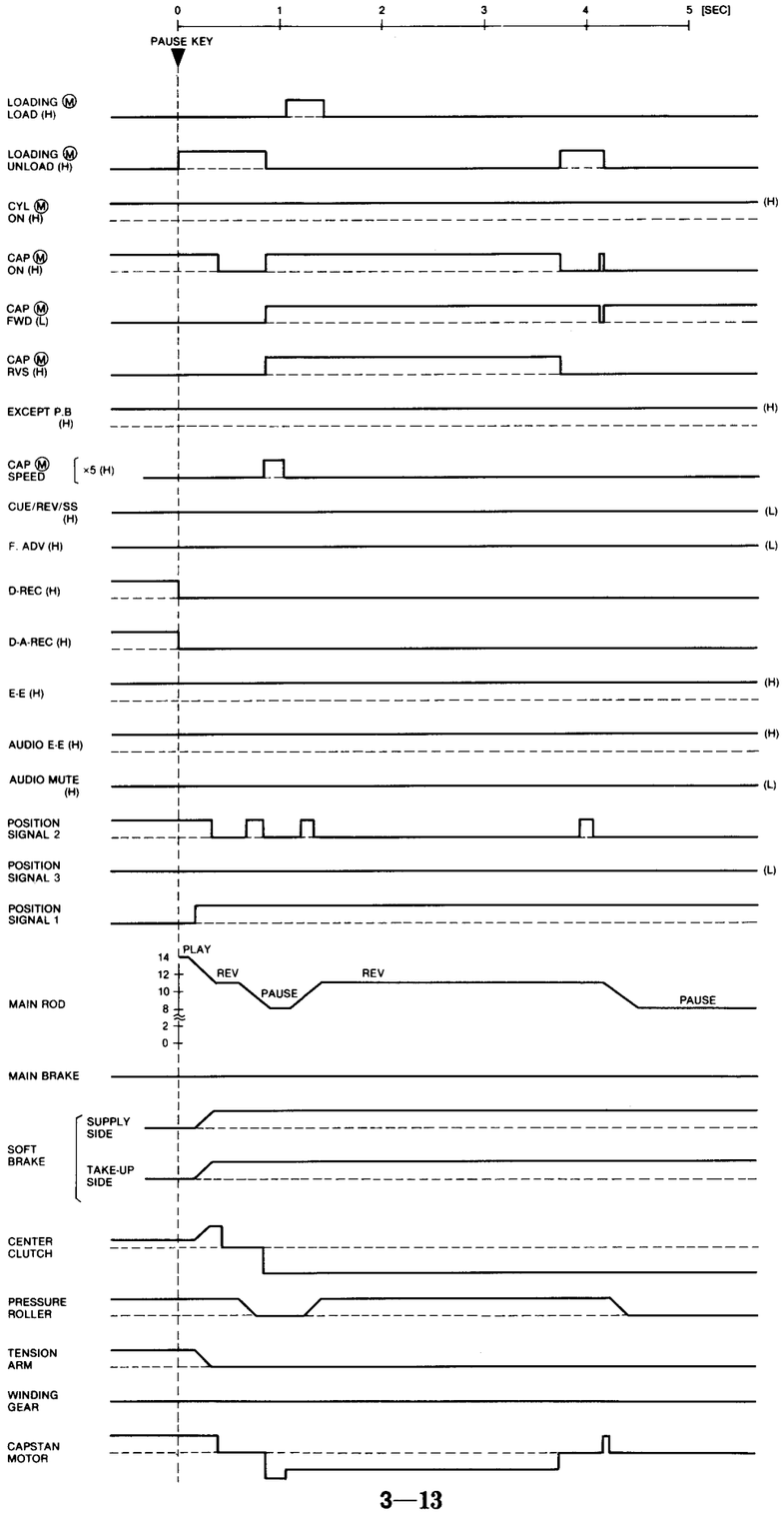
STOP → FF/REW MODE TIMING CHART



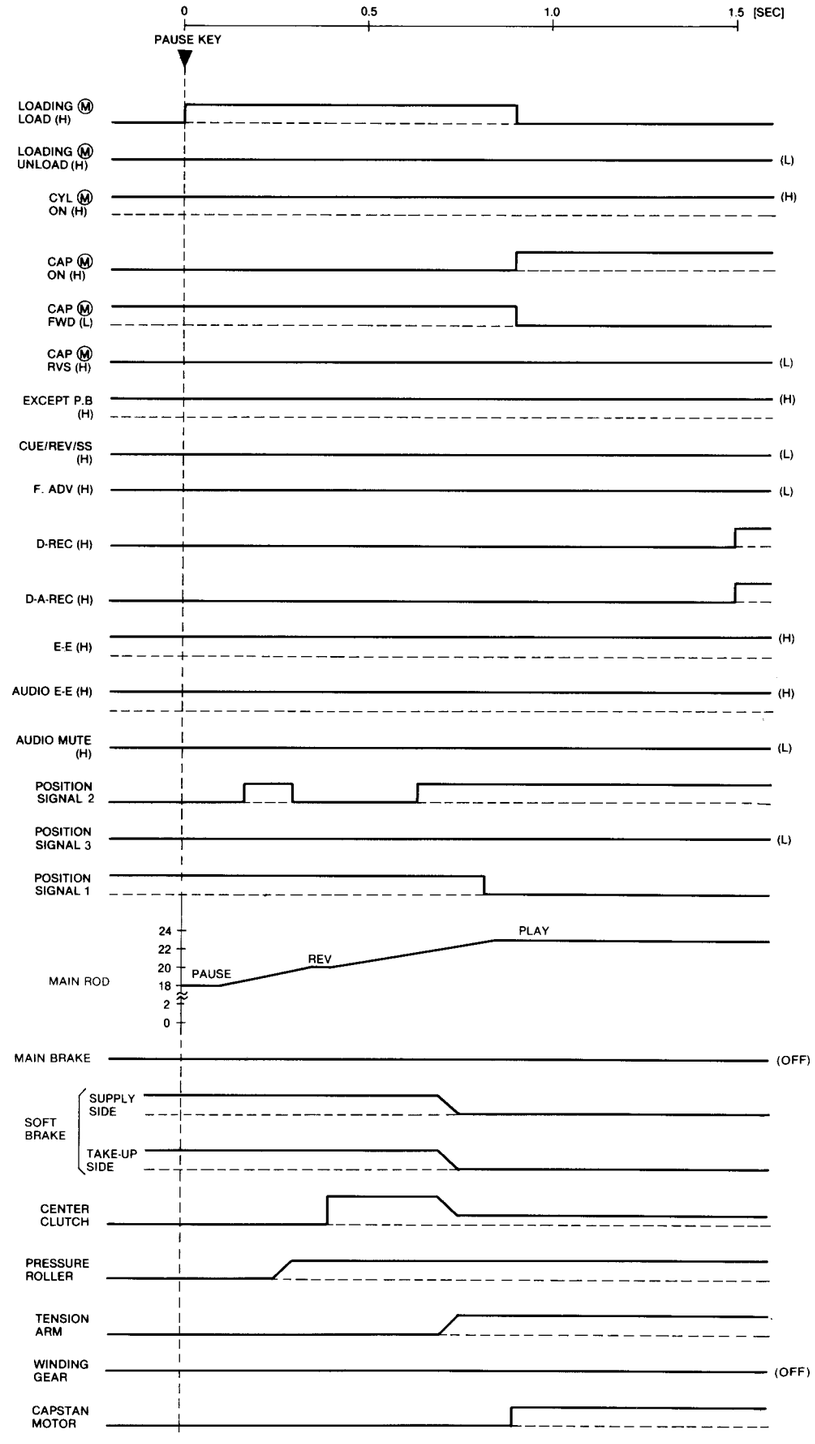
FF/REW → STOP MODE TIMING CHART



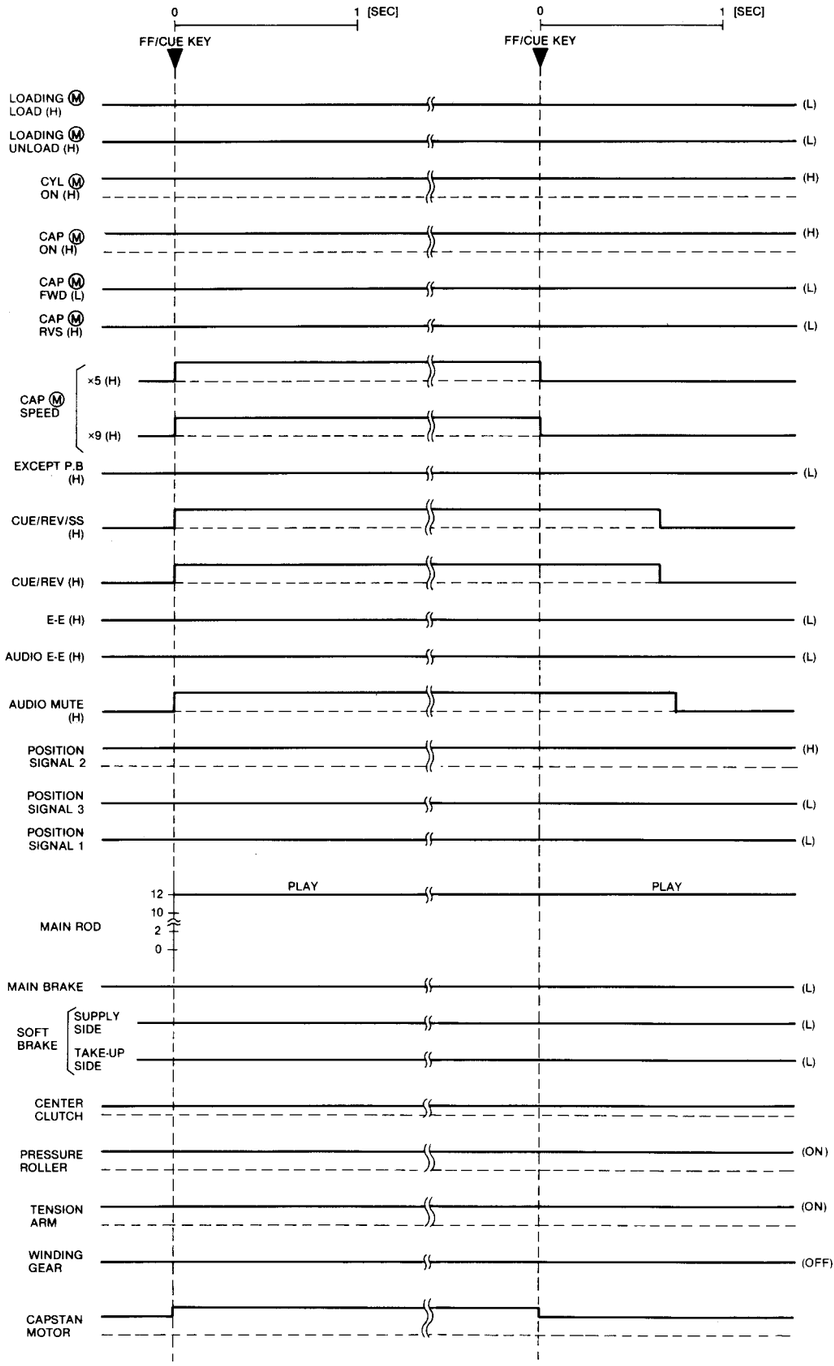
REC • PLAY → REC • PAUSE MODE TIMING CHART



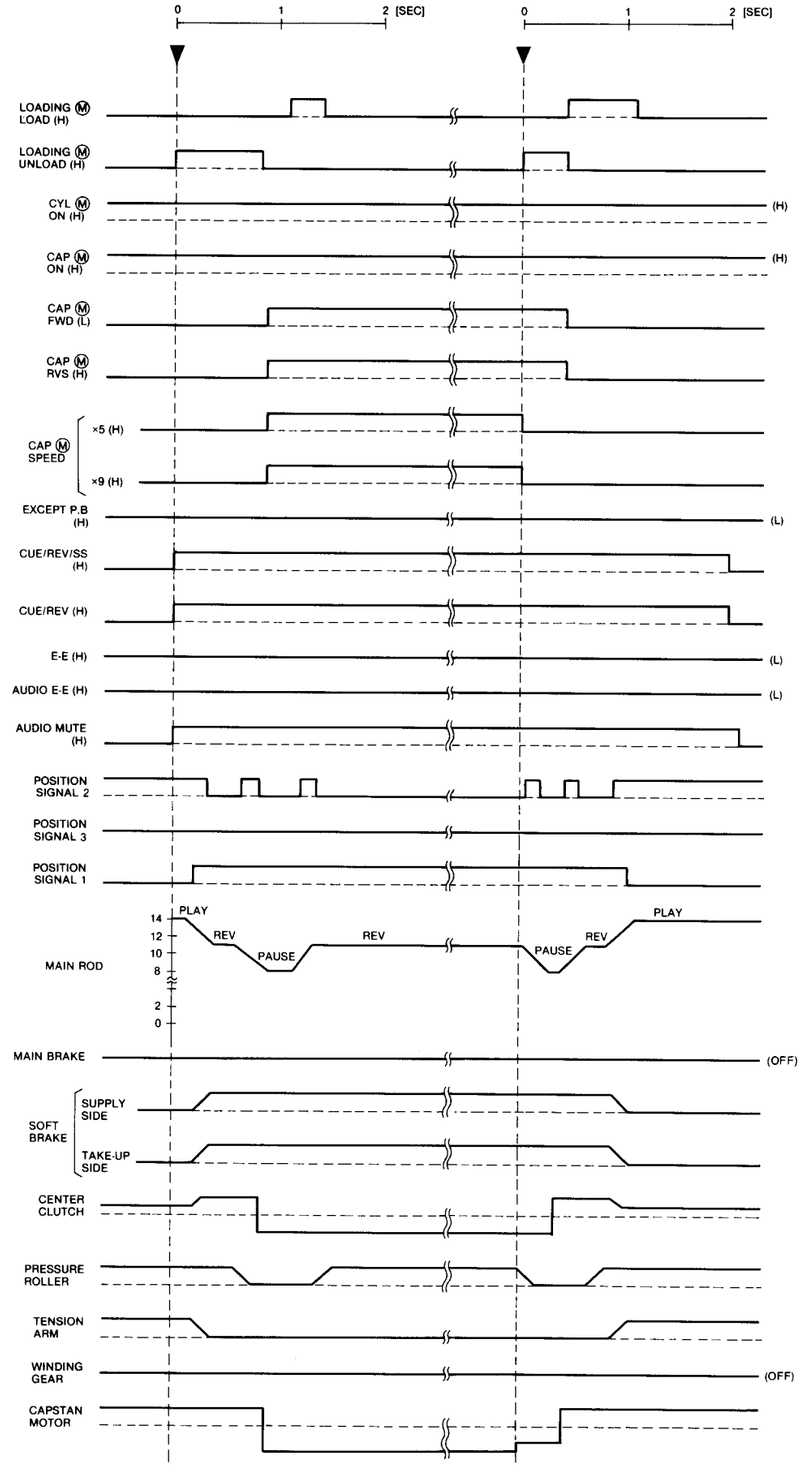
REC • PAUSE → REC • PLAY MODE TIMING CHART



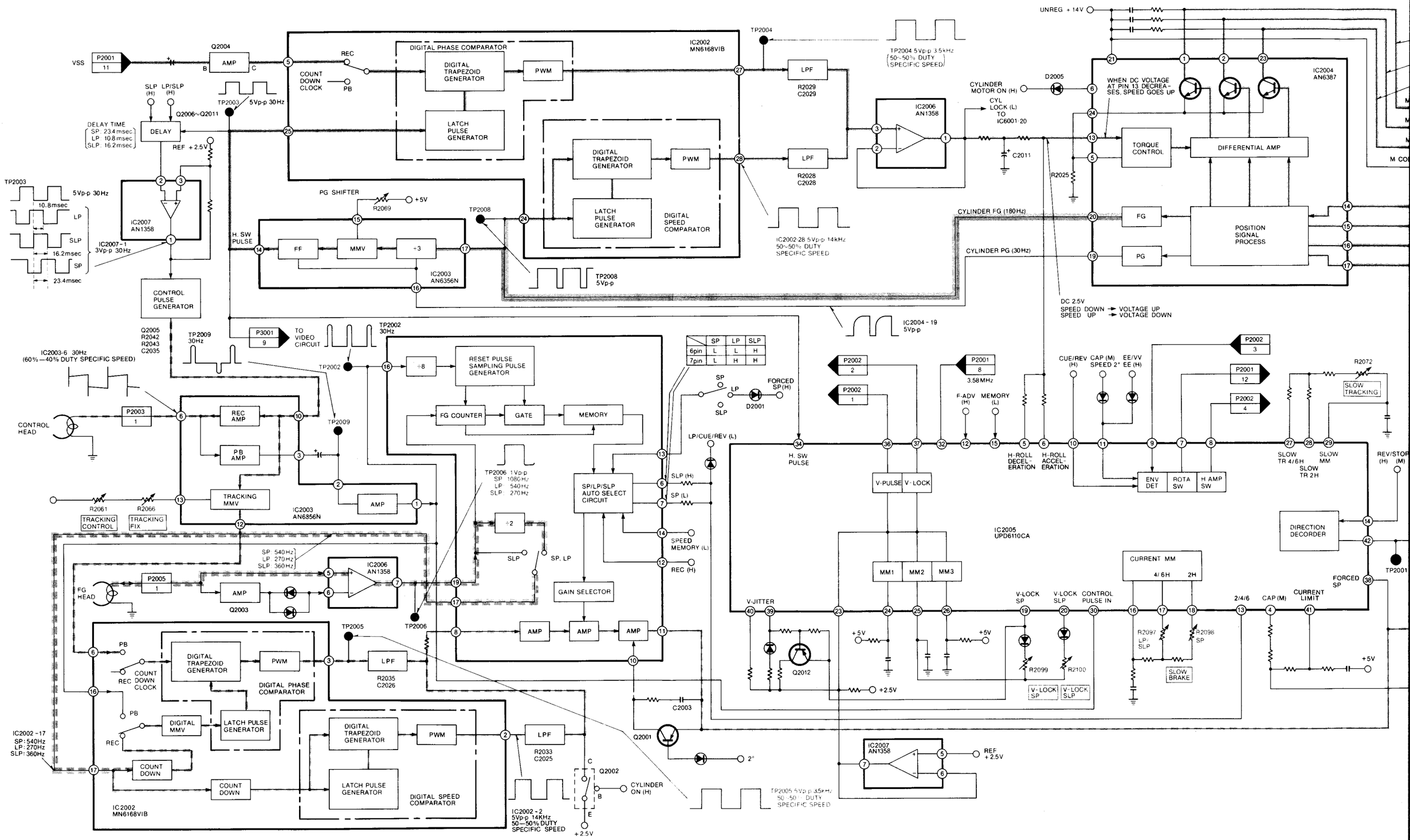
PLAY → CUE → PLAY MODE TIMING CHART

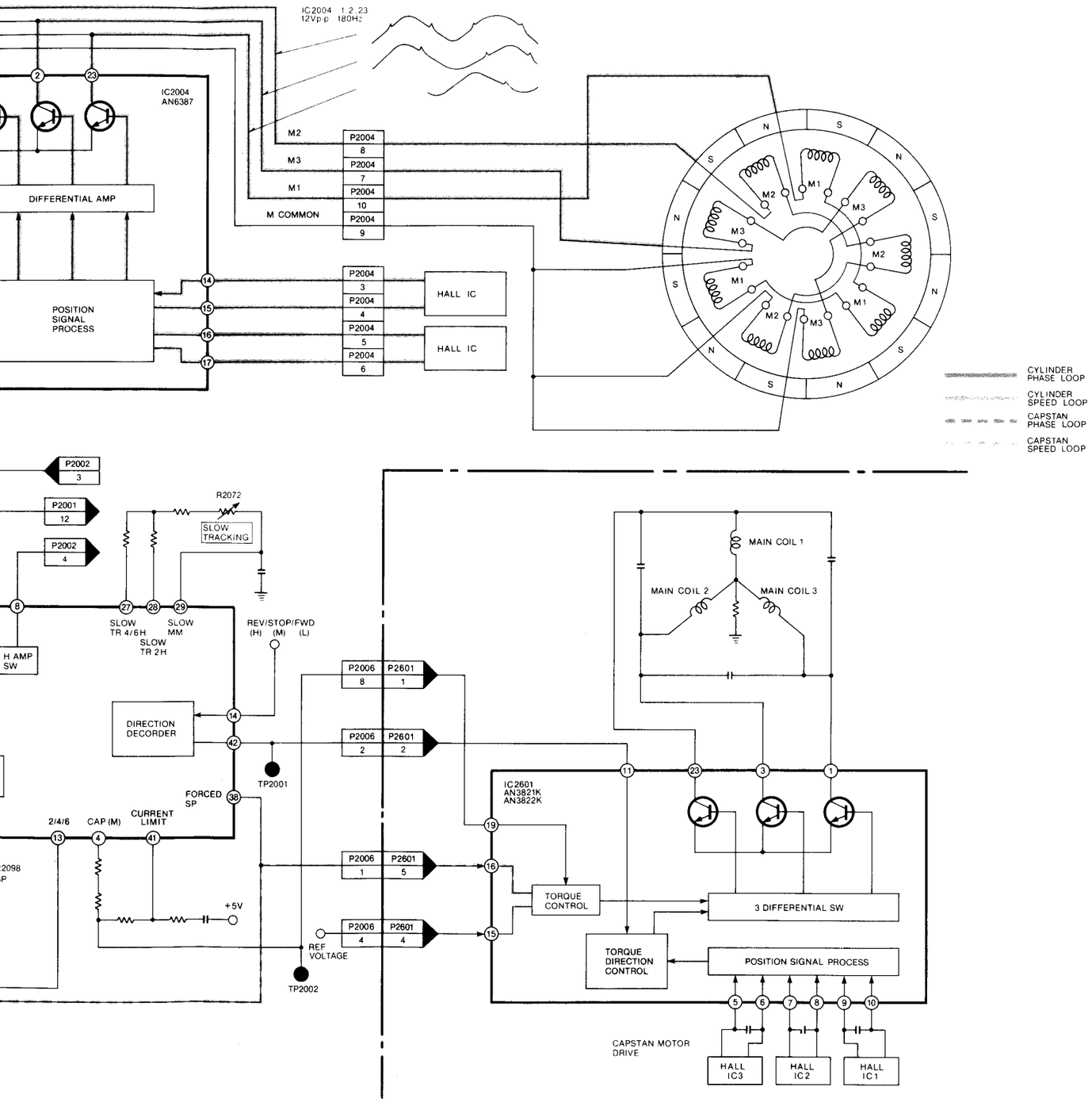


PLAY → REVIEW → PLAY MODE TIMING CHART

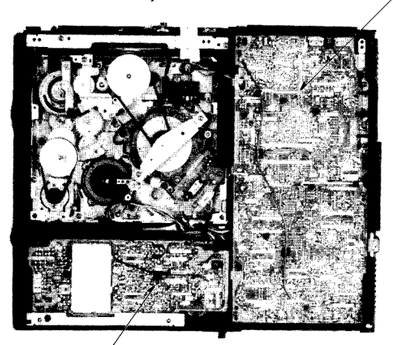


SERVO BLOCK DIAGRAM

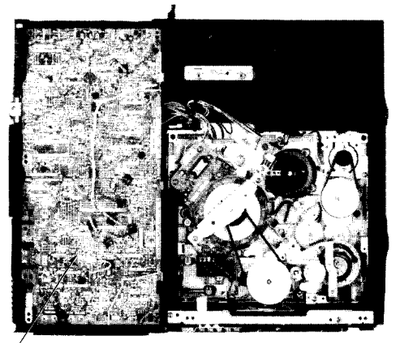




Mic Jack/System Control/Servo C.B.A.

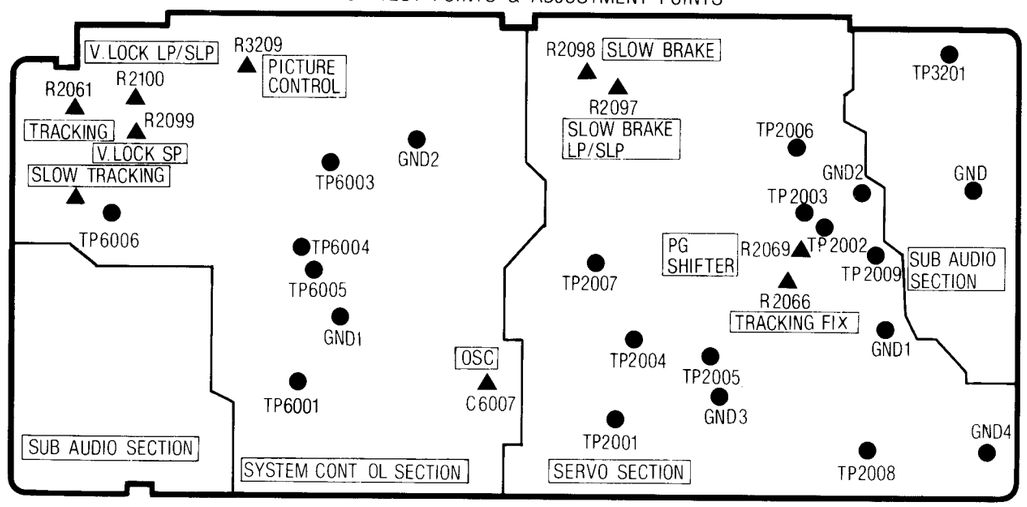


Linear Audio C.B.A.

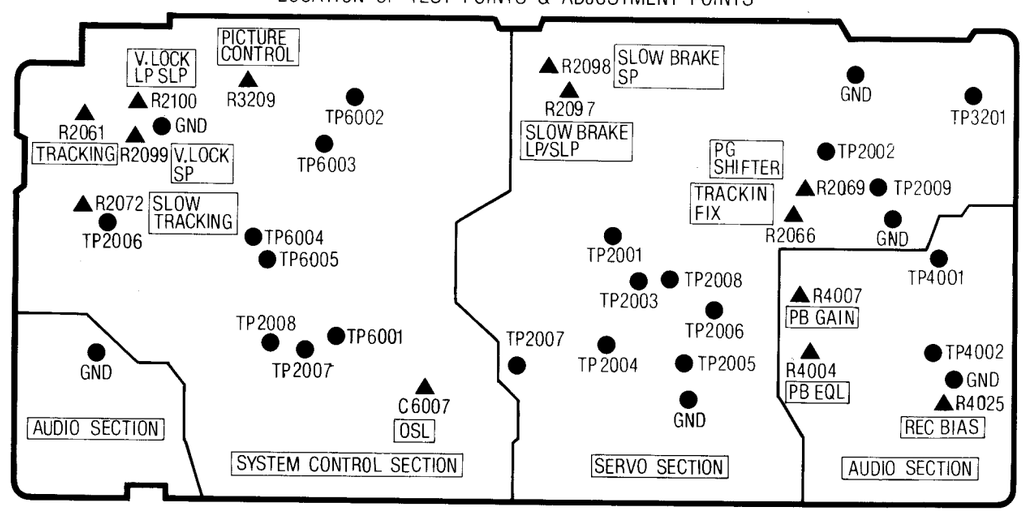


Servo/Audio/System Control/Mic Jack C.B.A.

LOCATION OF TEST POINTS & ADJUSTMENT POINTS

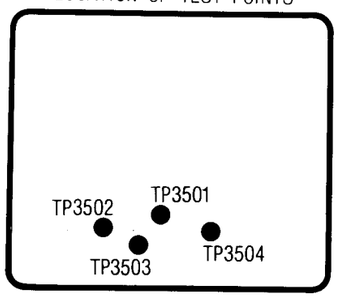


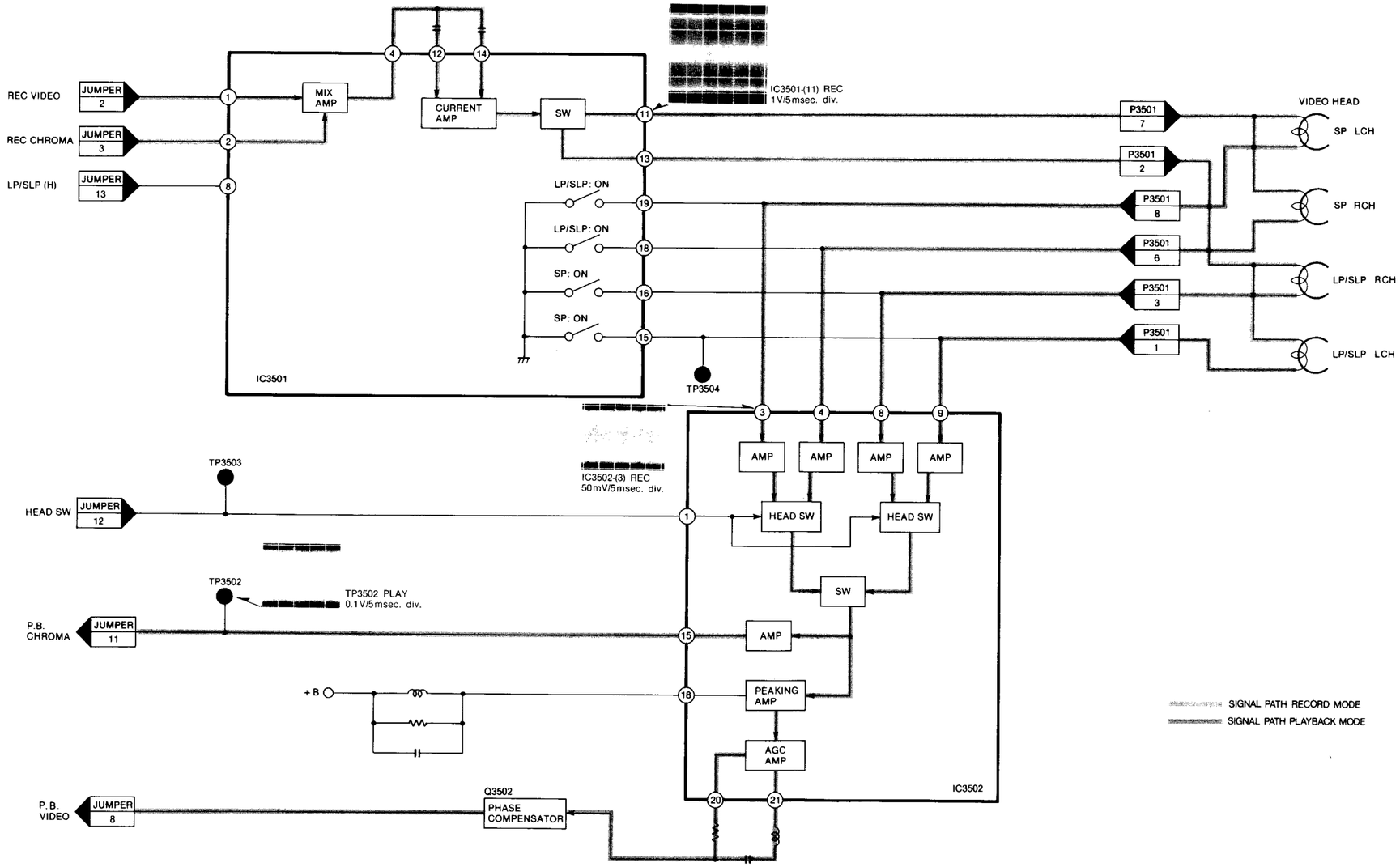
LOCATION OF TEST POINTS & ADJUSTMENT POINTS



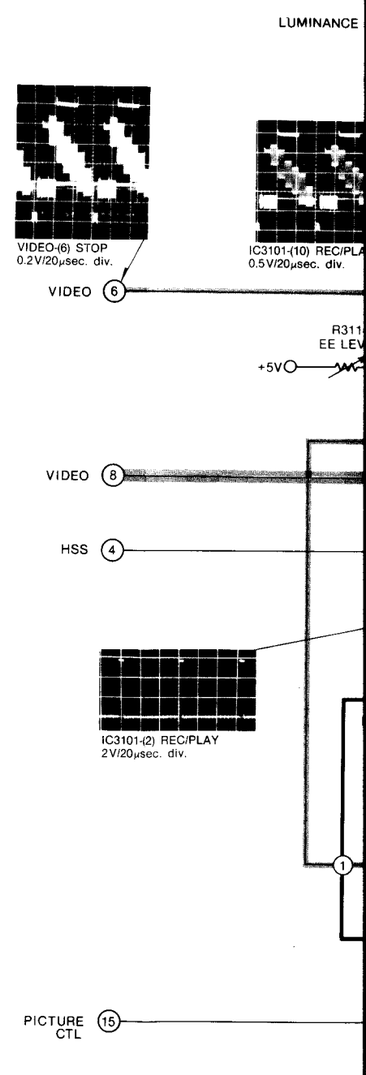
HEAD AMP BLOCK DIAGRAM

LOCATION OF TEST POINTS



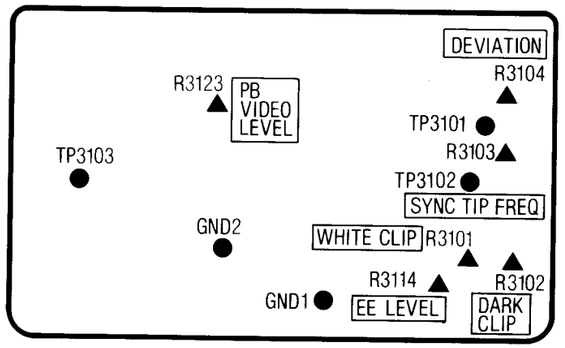


LUMINANCE BLOC

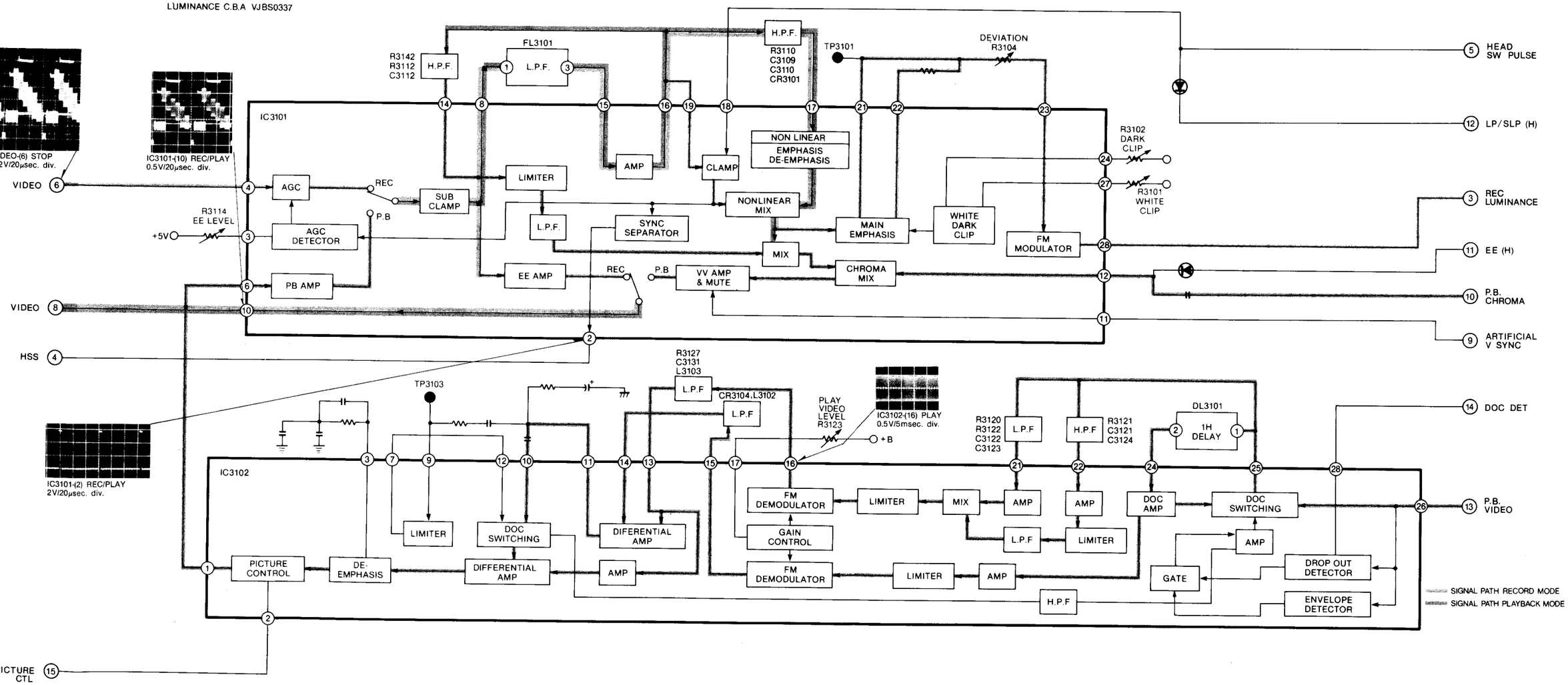


LUMINANCE BLOCK DIAGRAM

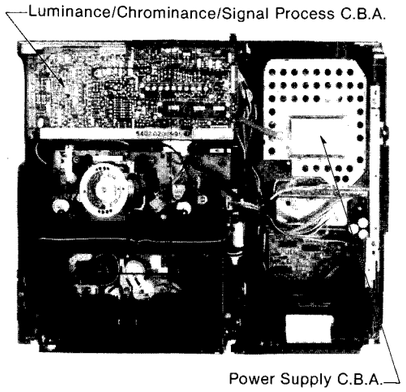
LOCATION OF TEST POINTS & ADJUSTMENT POINTS

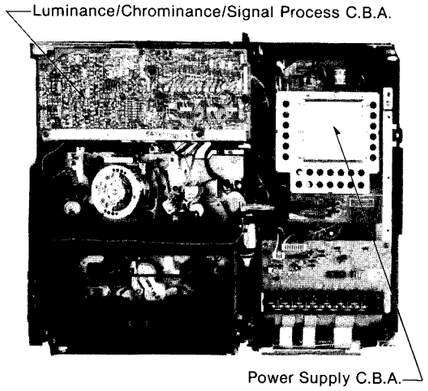


LUMINANCE C.B.A VJBS0337

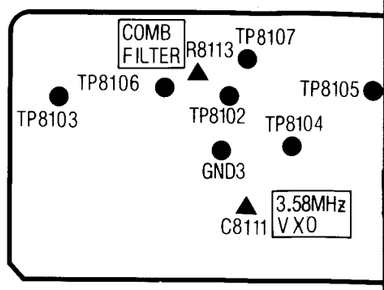


CHROMINANCE BLOCK DIAGRAM





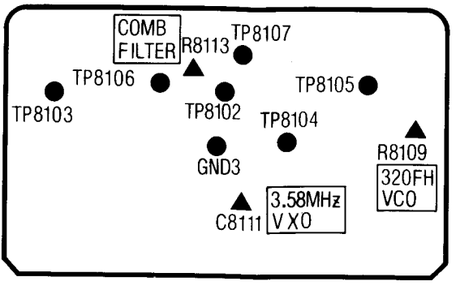
LOCATION OF TEST POINTS & ADJUSTMENT



CHROMINANCE C.B.A VJBS0806

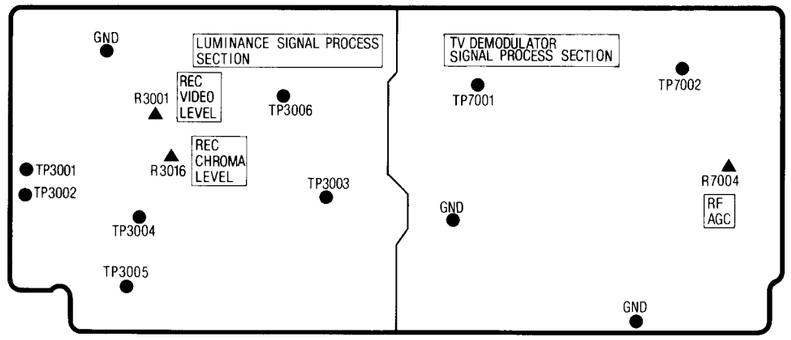
VIDEO (7)
Q8101 AMP
R8104 C8106 C8104 L8102 C8103 L8101 C8105 L8103
L.P.F
P.B
REC
FL8101 3.58MHz B.P.F
ACC
ACC DETECTOR
REC BURST 6dB BOOST
MAIN BALANCE MODULATOR
LP/SLP 1.5dB UP
REC
COLOR KILLER
P.B
BURST GATE
KILLER PHASE COMPARATOR
BURST 6dB ATT
90° PHASE SHIFTER
IC8101
BURST GATE PULSE
REC APC COMPARATOR
P.B APC COMPARATOR
X'TAL VCO
SUB BALANCE MODULATOR
VCO
SP/LP/SLP DETECTION
FL8101 4.2MHz B.P.F
TP8104
TP8104 STOP 0.5V/2μsec. div.
3.58 OSC C8111
R8109 320FH VCO
+5V
Q8102 BUFFER
DL8101 COMB FILTER
AMP Q8103
R8113 COMB F. ADJ
TP8107
TP8107 PLAY 0.2V/20μsec. div.
TP8105
3.58MHz (11)
TP8103 REC 0.2V/0.2μsec. div.
R8127 C8131 C8133 R8128 C8132 L8106 L8107
L.P.F
IC8102
BURST GATE PULSE GENERATOR
V-GATE
REC
1/320
AFC PHASE COMPARATOR
P.B
1/2
FREQUENCY DETECTOR
3μSEC MMV
4.5μSEC MMV
1/4 RING COUNTER
0° 90° 180° 270°
PHASE ROTATION
PHASE ROTATION
DIGITAL PLL
TP8102
PIN-(9) PLAY 0.2V/20μsec. div.
PIN-(16) PLAY 0.1V/5msec. div.
TP8107 PLAY 0.2V/20μsec. div.
(4) CUE / REVIEW / SS (H)
(16) P.B. CHROMA
(9) P.B CHROMA
(10) REC CHROMA
(6) HSS
(5) HSS PULSE
(8) ROTARY SW
(14) LP / SLP (H)
(13) SLP (H)
SIGNAL PATH RECORD
SIGNAL PATH PLAYBAC

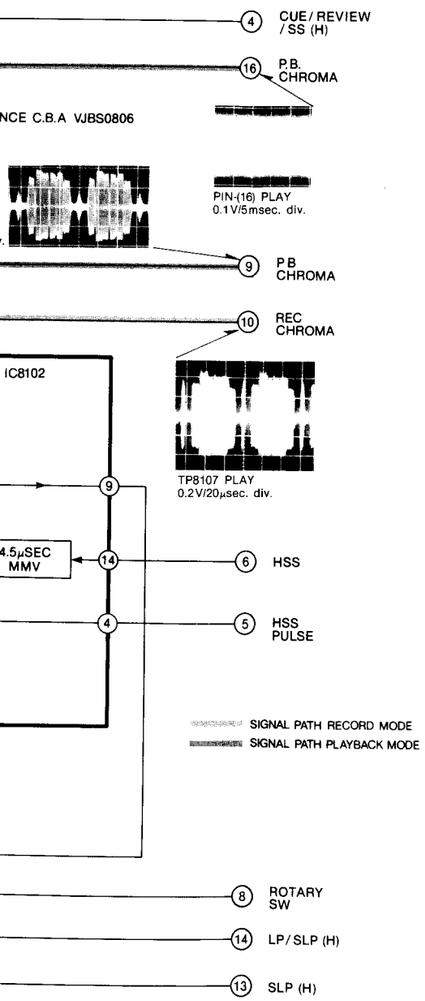
LOCATION OF TEST POINTS & ADJUSTMENT POINTS

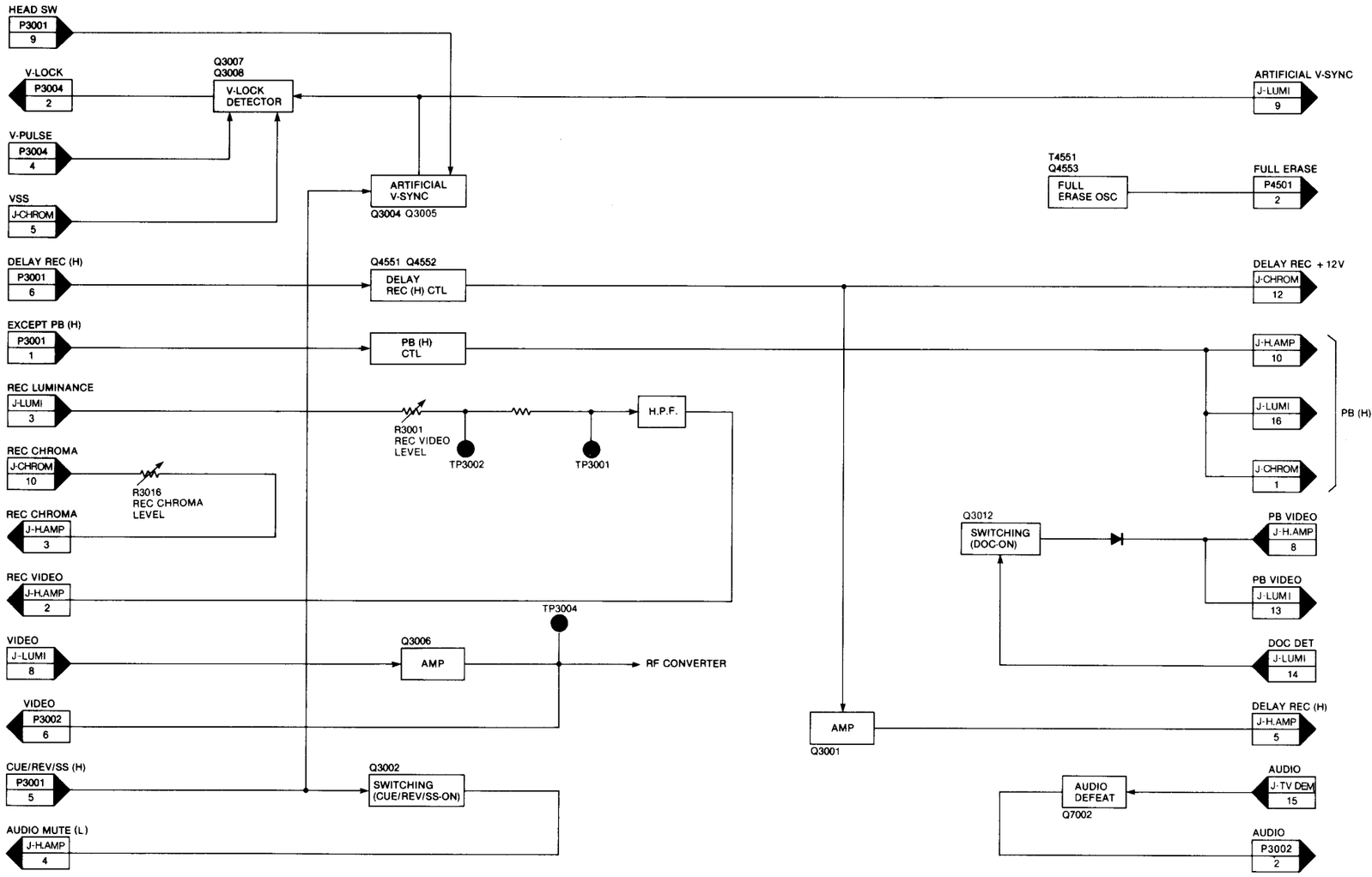


SIGNAL PROCESS BLOCK DIAGRAM

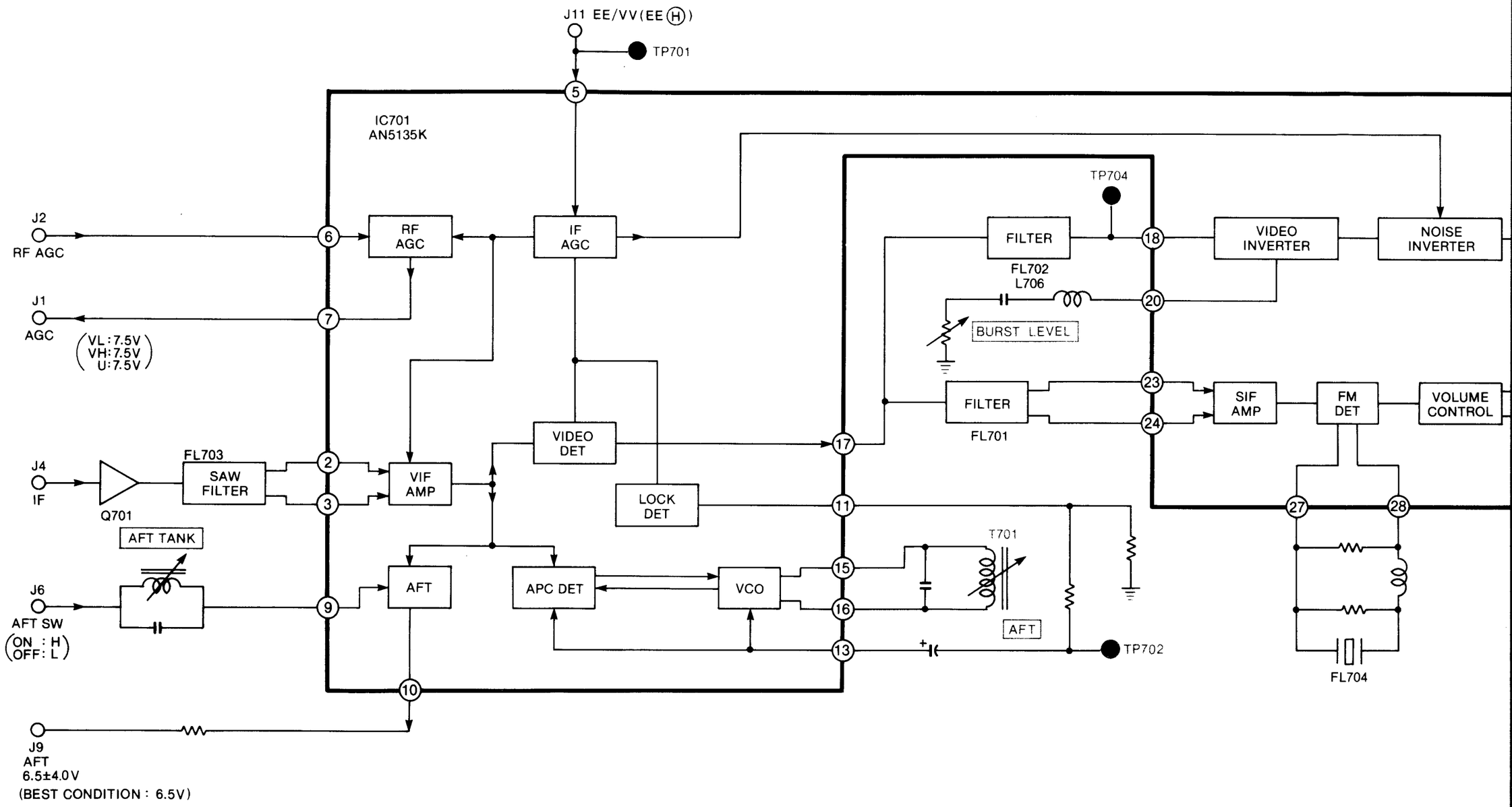
LOCATION OF TEST POINTS & ADJUSTMENT POINTS



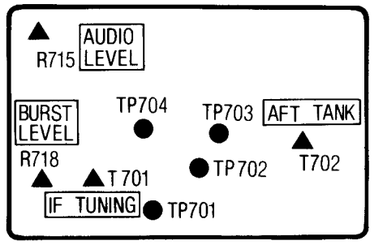


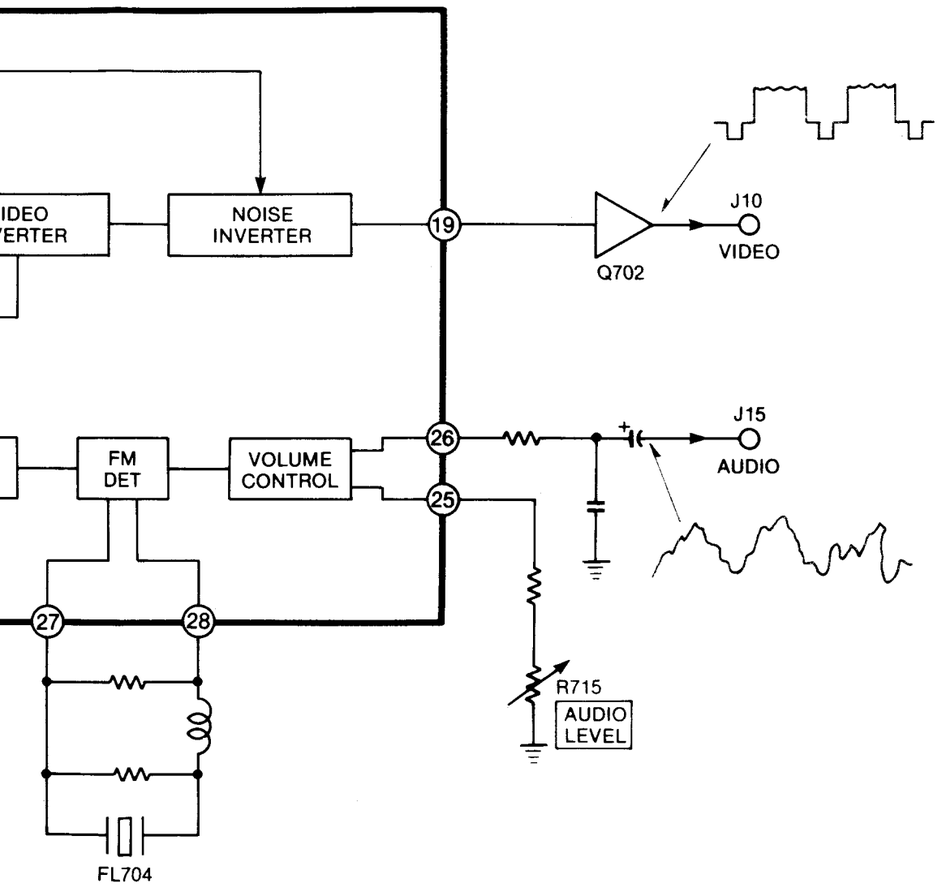


TV DEMODULATOR BLOCK DIAGRAM

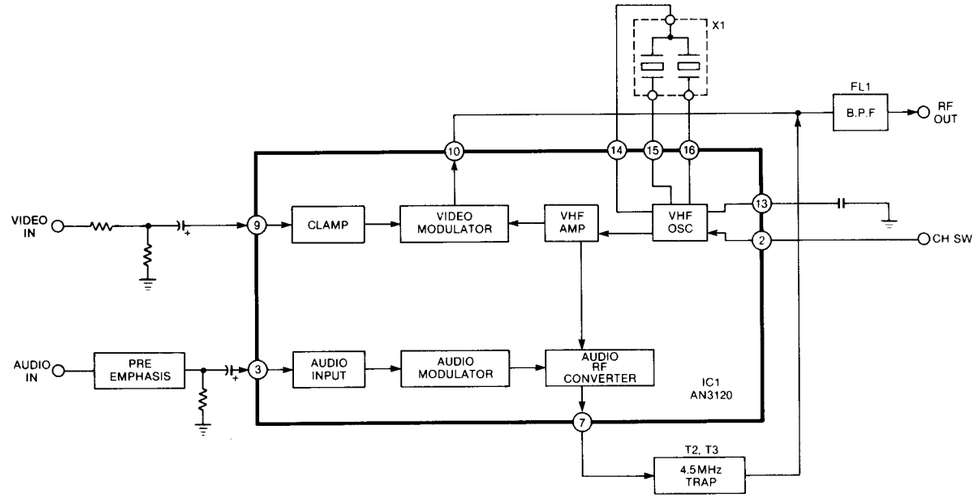


LOCATION OF TEST POINTS & ADJUSTMENT POINTS

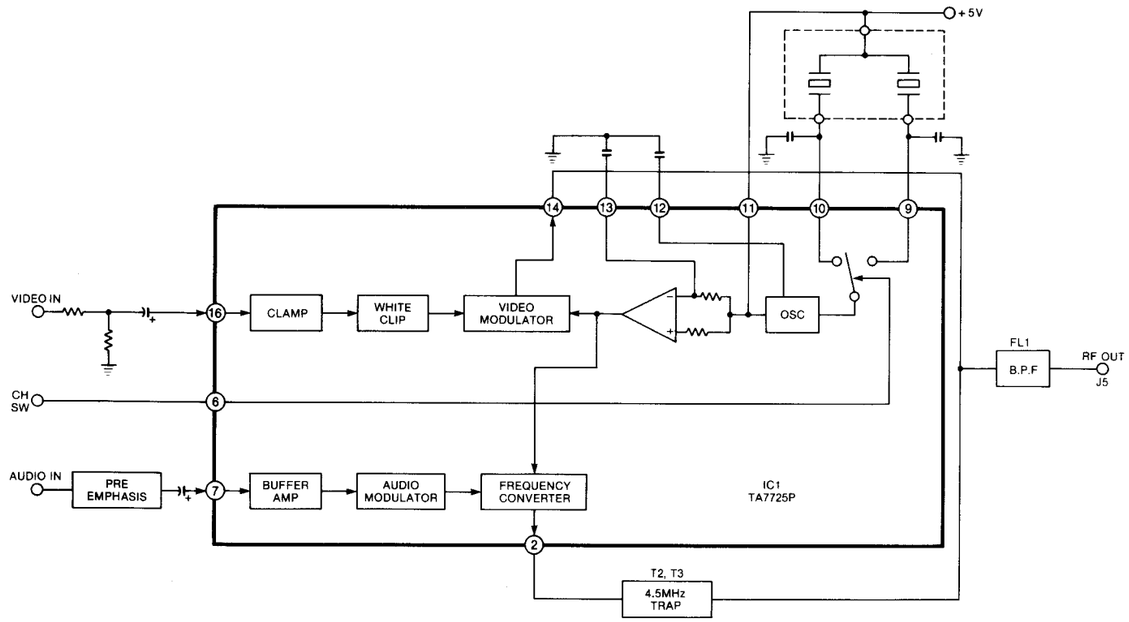




RF CONVERTER BLOCK DIAGRAM (VEQS0252/0253)

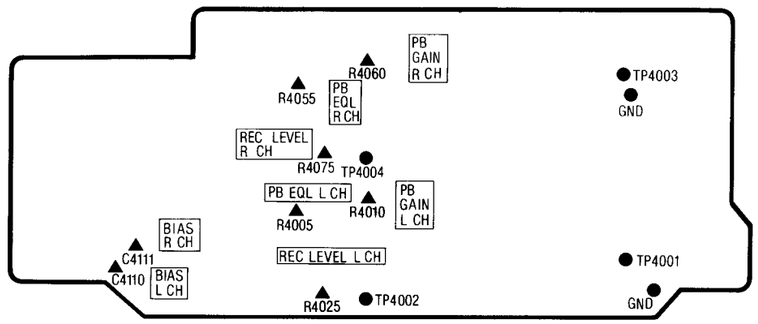


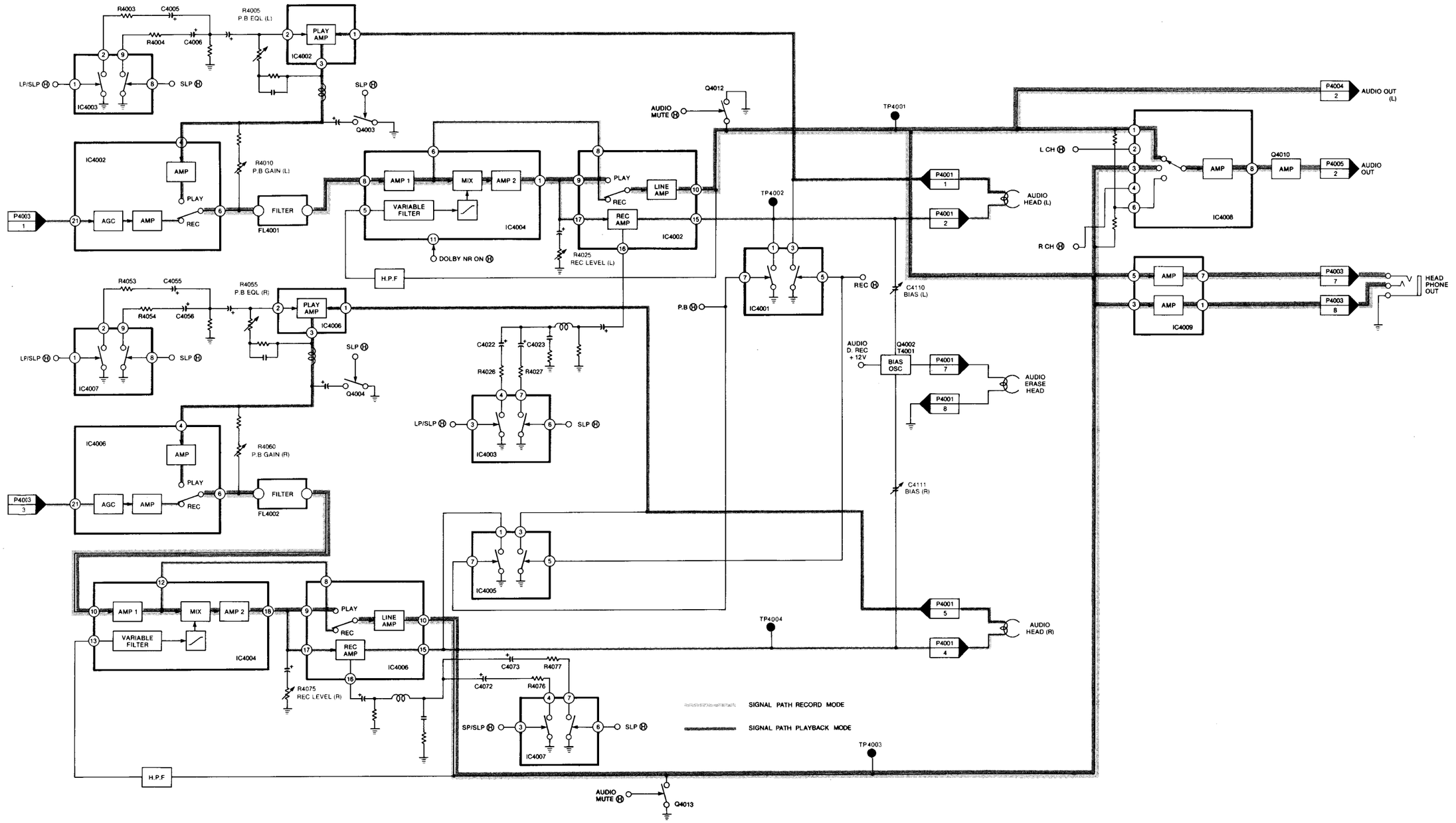
RF CONVERTER BLOCK DIAGRAM (VEQS0254/0255)



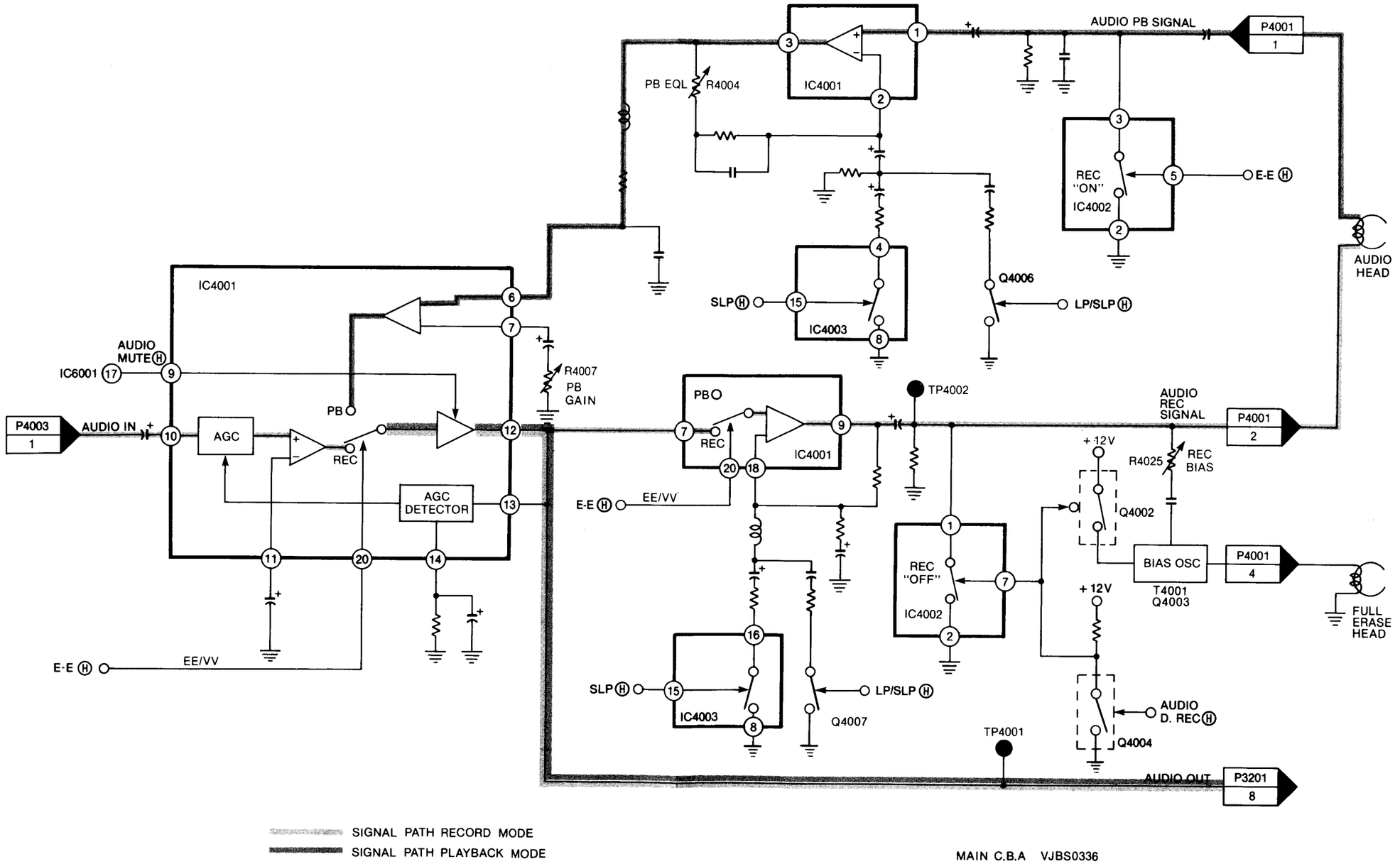
AUDIO BLOCK DIAGRAM FOR STEREO TYPE

LOCATION OF TEST POINTS & ADJUSTMENT POINTS





AUDIO BLOCK DIAGRAM FOR MONAURAL TYPE



MAIN C.B.A VJBS0336

ORDER NO. VRD-8404-569
B3

Service Manual

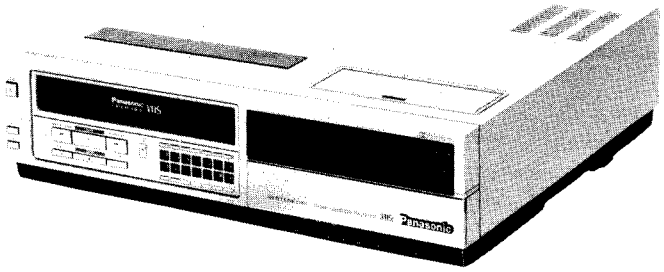
Video Cassette Recorder

Vol. 4

Panasonic Omnivision VHS

Schematic Diagrams
Printed Circuit Board Diagrams

PV-1530
PV-1525



SPECIFICATIONS

Power Source:	120V AC ± 10%, 60Hz ± 0.5%
Power Consumption:	Approx. 22 watts
Television System:	EIA Standard (525 lines, 60 fields) NTSC color signal
Video Recording System:	4 rotary heads, helical scanning system Luminance: FM azimuth recording Color signal: Converted subcarrier phase shift recording
Audio Track:	2 track (PV-1525: 1 track)
Tape Format:	Tape width 1/2" (12.7mm), high density tape
Tape Speed:	SP mode: 1-5/16 i.p.s. (33.35mm/s) LP mode: 21/32 i.p.s. (16.67mm/s) SLP mode: 7/16 i.p.s. (11.12mm/s)
Record/Playback Time:	8 HRS. with 160 min. type tape used in SLP mode
FF/REW Time:	Less than 6 min. with 120 min. type tape
Heads:	Video: 4 rotary heads Audio/Control: 2 stationary head (PV-1525: 1 stationary head) Erase: 1 full track erase 1 audio track erase
Input Level:	Video: VIDEO IN Jack (RCA type) 1.0Vp-p, 75Ω unbalanced Audio: AUDIO IN Jack (RCA type) (Right, Left) −20dB, 50kΩ unbalanced MIC IN jack (M6) (Right, Left) −70dB, 4kΩ unbalanced PV-1525: MIC IN jack (M3) −70dB, 4kΩ unbalanced TV Tuners: VHF Input: VHF Ch2-Ch13, cable channels "A"~"W", "A-2", "A-1" 75Ω unbalanced UHF Input: Ch14-Ch83, 300Ω balanced
Output Level:	Video: VIDEO OUT Jack (RCA type) 1.0Vp-p, 75Ω unbalanced Audio: AUDIO OUT Jack (RCA type) (Right, Left) −9dB, 1kΩ unbalanced PV-1525: −6dB, 600Ω unbalanced RF Modulated: Ch3/Ch4 switchable, 72dBμ, (Open Voltage) 75Ω unbalanced
Video Horizontal Resolution:	Color: more than 230 lines B/W: more than 230 lines
Audio Frequency Response: (10dB down)	SP mode: 100Hz~8kHz LP mode: 100Hz~6kHz SLP mode: 150Hz~5kHz
Signal-to-Noise Ratio:	Video: SP mode: better than 41dB LP mode: better than 41dB SLP mode: better than 41dB (Rohde & Schwarz noise meter) Audio: SP mode: better than 42dB LP mode: better than 40dB SLP mode: better than 40dB
Operation Temperature:	41°F—104°F (5°C—40°C)
Operating Humidity:	10%—75%
Weight:	16.8 lbs. (7.6kg) PV-1525: 15.7 lbs. (7.1kg)
Dimensions:	16-15/16"(W)×14-5/16"(D)×4-1/4"(H) (430mm×364mm×108mm)
Accessories Supplied:	• Remote control unit (PV-1525) • Wireless Remote control unit (PV-1530) • VHF connecting cable • 300Ω—75Ω transformer • Twin-lead cable • V-Lock Tool
Available Tapes:	1/2" VHS video cassette tapes NV-T160 Approx. 1073ft. (327m), 160, 320, or 480 min. NV-T120 Approx. 810ft. (247m), 120, 240, or 360 min. NV-T60 Approx. 417ft. (127m), 60, 120, or 180 min.

Weight and dimensions shown are approximate.

Specifications are subject to change without notice.

Panasonic®

Matsushita Engineering & Service Company
Division of Matsushita Electric
Corporation of America
50 Meadowland Parkway, Secaucus,
New Jersey 07094

Panasonic Hawaii Inc.
91-238 Kauhi St. Ewa Beach
P.O. Box 774
Honolulu, Hawaii 96808-0774

Matsushita Electric
of Canada Limited
5770 Ambler Drive, Mississauga,
Ontario, L4W 2T3

Panasonic Sales Company,
Division of Matsushita Electric
of Puerto Rico, Inc.
Ave, 65 De Infanteria, KM 9.7
Victoria Industrial Park
Carolina, Puerto Rico 00630

CONTENTS

IMPORTANT SAFETY NOTICE

There are special components used in this equipment which are important for safety. These parts are shaded on the schematic diagram and on the replacement parts list. It is essential that these critical parts should be replaced with manufacturer's specified parts to prevent shock, fire, or other hazards. Do not modify the original design without permission of manufacturer.

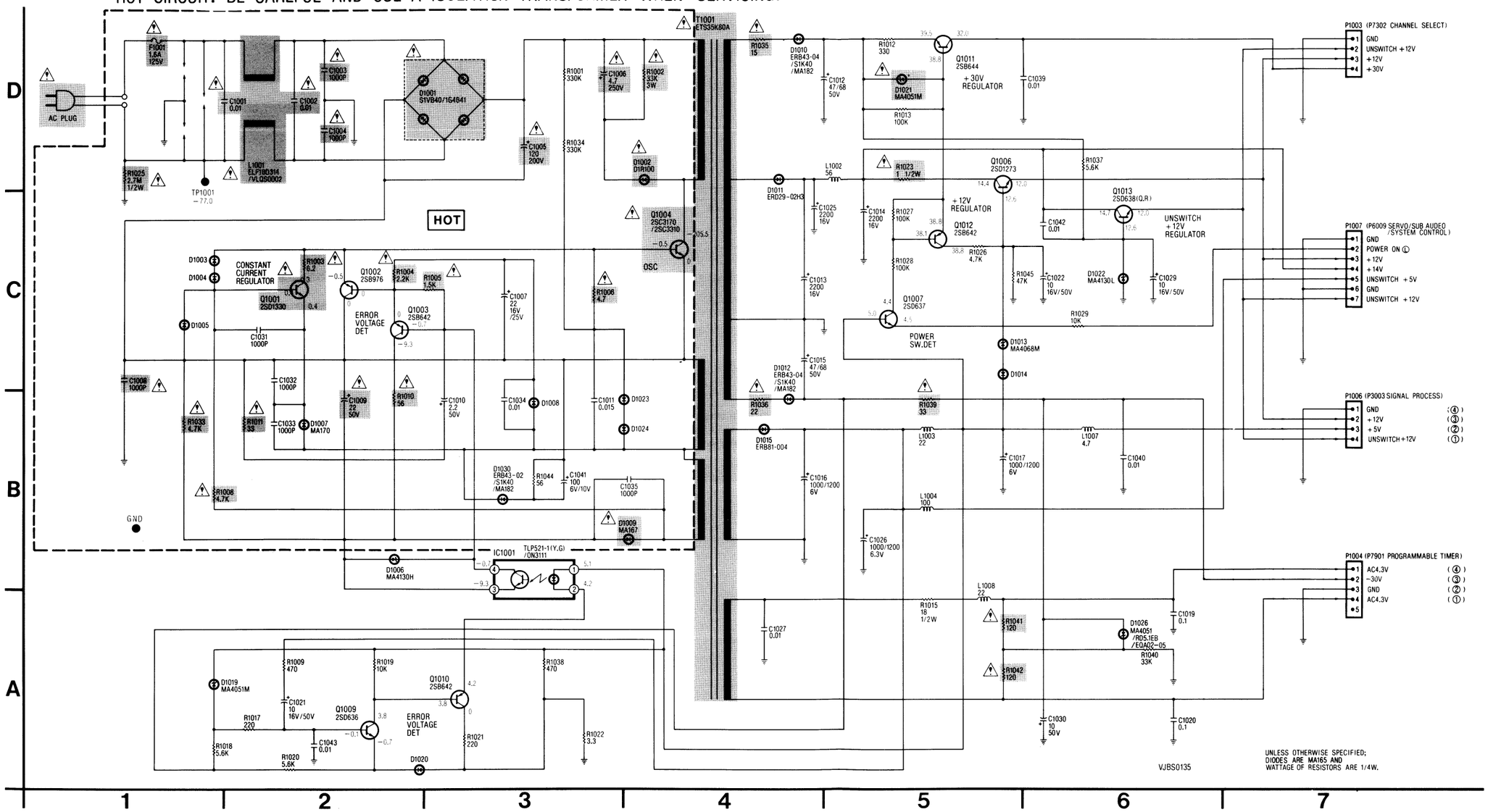
POWER SUPPLY SCHEMATIC DIAGRAM

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.

CALLOUTS NEXT TO WIRING PLUGS INDICATE CONNECTIONS TO OTHER SCHEMATIC DIAGRAM.

VOLTAGE MEASUREMENT: COLOR BAR SIGNAL IN STOP MODE.

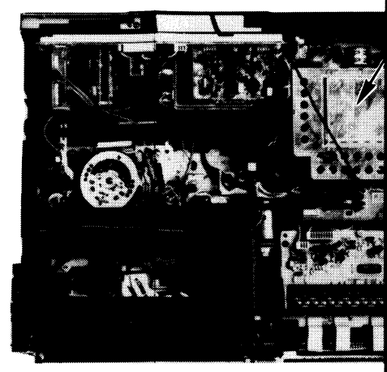
HOT CIRCUIT. BE CAREFUL AND USE A ISOLATION TRANSFORMER WHEN SERVICING.



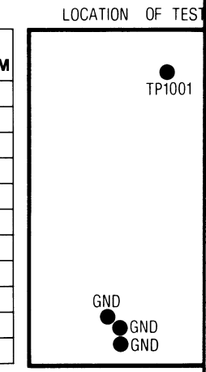
NOTE: REF. NO. ON C.B.A. IS PRINTED AS FOLLOWS.
EXAMPLE: C.B.A.···R2, REF. NO. 1000 SERIES SCHEMATIC DIAGRAM···R1002
(R1002 IS ABBREVIATED TO R2)

SPECIAL NOTE:
ALL INTEGRATED CIRCUITS AND MANY OTHER SEMICONDUCTOR DEVICES ARE ELECTROSTATICALLY SENSITIVE AND THEREFORE REQUIRE THE SPECIAL HANDLING TECHNIQUES DESCRIBED UNDER THE "ELECTROSTATICALLY SENSITIVE (ES) DEVICES" SECTION OF THIS SERVICE MANUAL.

POWER SUPPLY C.B.A.



LOCATION OF TEST



POWER SUPPLY SCHEMATIC DIAGRAM	
Q1001	2-C
Q1002	2-C
Q1003	2-C
Q1004	4-C
Q1006	5-D
Q1007	5-C
Q1009	2-A
Q1010	3-A
Q1011	5-D
Q1012	5-C
Q1013	6-C

P1007

1	GND
2	POWER ON
3	+12V
4	+14V
5	UNSWITCH +5V
6	GND
7	UNSWITCH +12V

P1006

1	GND
2	+12V
3	+5V
4	UNSWITCH +12V

P1003

1	GND
3	UNSWITCH +12V
3	+12V
4	+30V

P1004

1	AC 4.3V
2	-30V
3	GND
4	AC 4.3V

WIRING PLUGS INDICATE
HER SCHEMATIC DIAGRAM.

P1003 (P7302 CHANNEL SELECT)

1	GND	
2	UNSWITCH +12V	
3	+12V	
4	+30V	

P1007 (P6009 SERVO/SUB AUDEO /SYSTEM CONTROL)

1	GND	
2	POWER ON Ⓛ	
3	+12V	
4	+14V	
5	UNSWITCH +5V	
6	GND	
7	UNSWITCH +12V	

P1006 (P3003 SIGNAL PROCESS)

1	GND	(④)
2	+12V	(③)
3	+5V	(②)
4	UNSWITCH +12V	(①)

P1004 (P7901 PROGRAMMABLE TIMER)

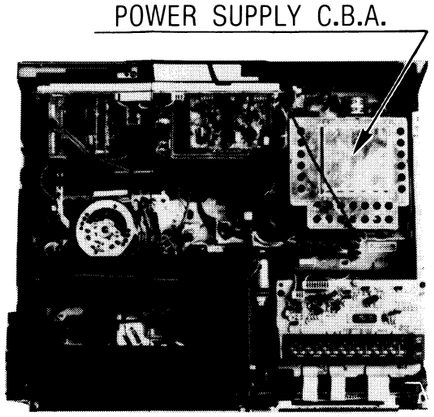
1	AC4.3V	(④)
2	−30V	(③)
3	GND	(②)
4	AC4.3V	(①)
5		

WISE SPECIFIED;
A165 AND
ESISTORS ARE 1/4W.

7

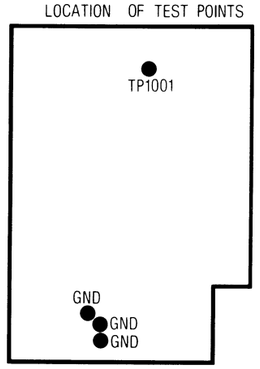
ONDUCTOR DEVICES ARE
UIRE THE SPECIAL
CTROSTATICALLY SENSITIVE

POWER SUPPLY C.B.A.



POWER SUPPLY SCHEMATIC DIAGRAM	
Q1001	2-C
Q1002	2-C
Q1003	2-C
Q1004	4-C
Q1006	5-D
Q1007	5-C
Q1009	2-A
Q1010	3-A
Q1011	5-D
Q1012	5-C
Q1013	6-C

LOCATION OF TEST POINTS



P1007

1	GND
2	POWER ONⓁ
3	+12V
4	+14V
5	UNSWITCH +5V
6	GND
7	UNSWITCH +12V

P1006

1	GND
2	+12V
3	+5V
4	UNSWITCH +12V

P1003

1	GND
3	UNSWITCH +12V
3	+12V
4	+30V

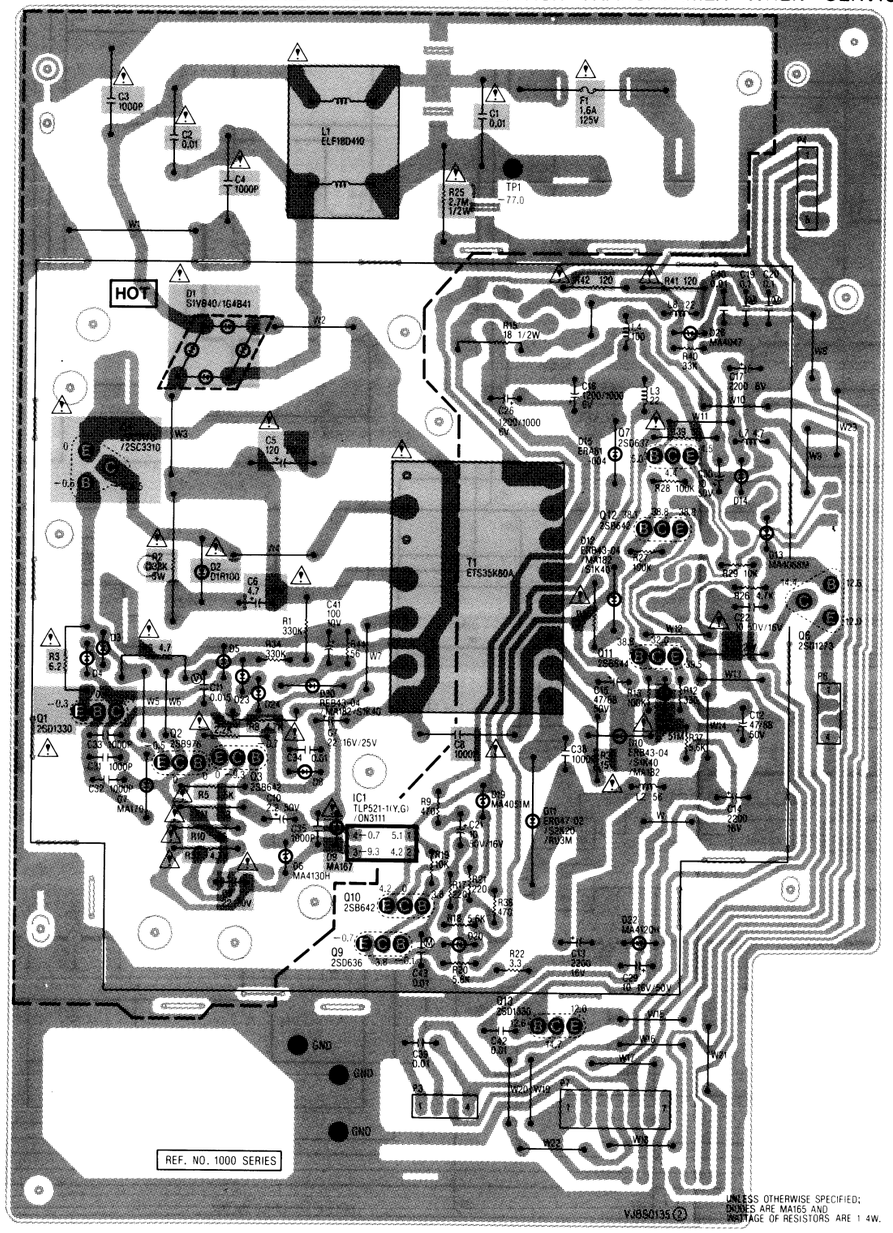
P1004

1	AC 4.3V
2	−30V
3	GND
4	AC 4.3V

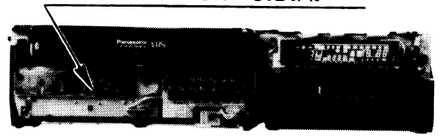
POWER SUPPLY C.B.A. VEPS0135E2 (PV-1530) VEPS0135F1 (PV-1525)

IMPORTANT SEFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.

HOT CIRCUIT. BE CAREFUL AND USE A ISOLATION TRANSFORMER WHEN SERVICING.



OPERATION C.B.A.



POWER SUPPLY C.B.A.	
Q 1	1-B
Q 2	1-B
Q 3	1-B
Q 4	1-C
Q 6	4-C
Q 7	3-C
Q 9	2-B
Q10	2-B
Q11	3-C
Q12	3-C
Q13	3-A

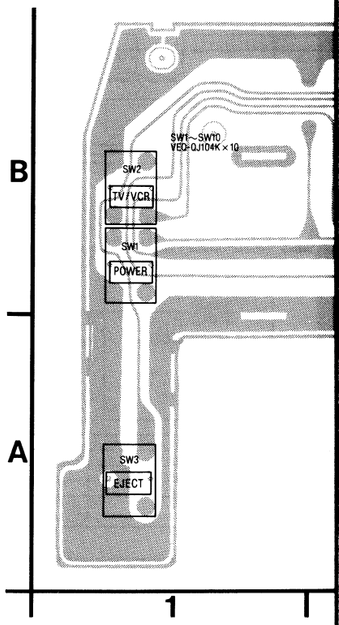
OPERATION SCH

(P6008 SERVO/SUB AUDIO /SYSTEM CONTROL) P6301

GND	1
TV/VCR SW	2
IR POWER SW	3
SCAN 1	4
SCAN 2	5
DATA IN11	6
DATA IN10	7
DATA IN 9	8
DATA IN 8	9

B
A
1

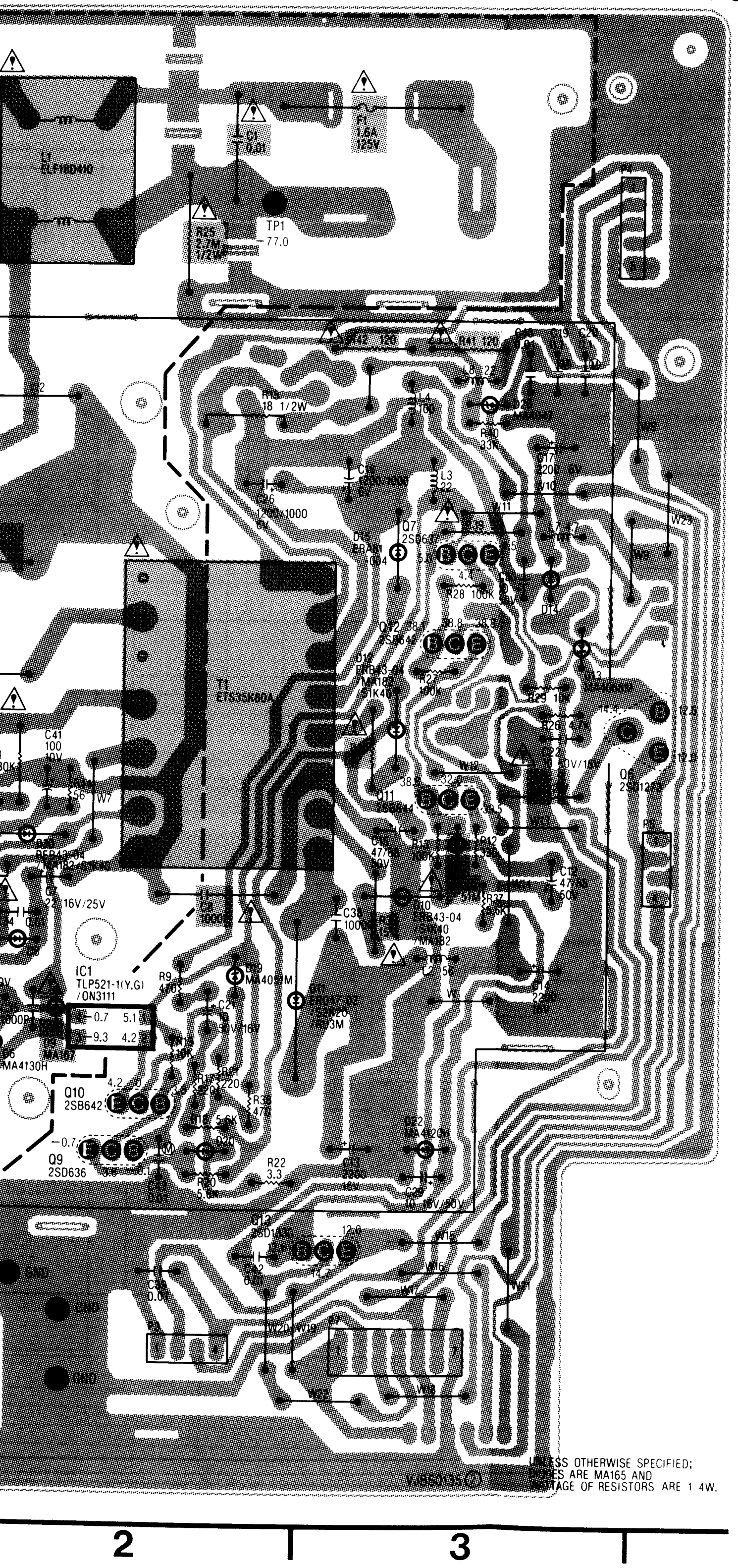
OPERATION C.B.A



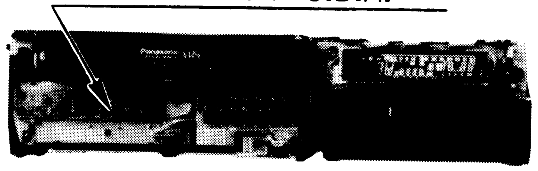
C.B.A. VEPS0135E2 (PV-1530) VEPS0135F1 (PV-1525)

IMPORTANT SEFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.

UL AND USE A ISOLATION TRANSFORMER WHEN SERVICING.



OPERATION C.B.A.



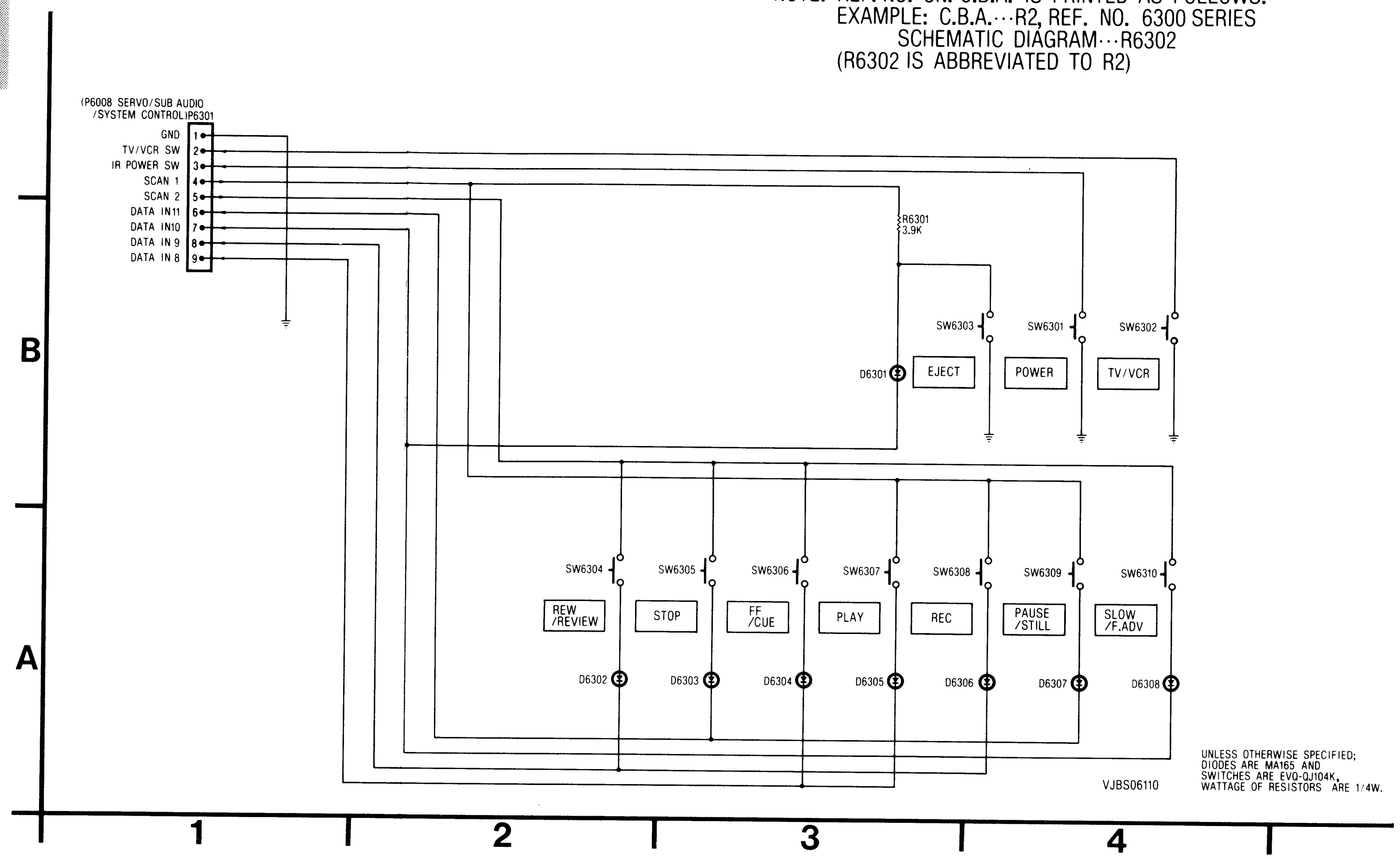
POWER SUPPLY C.B.A.	
Q 1	1-B
Q 2	1-B
Q 3	1-B
Q 4	1-C
Q 6	4-C
Q 7	3-C
Q 9	2-B
Q10	2-B
Q11	3-C
Q12	3-C
Q13	3-A

OPERATION SCHEMATIC DIAGRAM

CALLOUTS NEXT TO WIRING PLUGS INDICATE CONNECTIONS TO OTHER SCHEMATIC DIAGRAM.

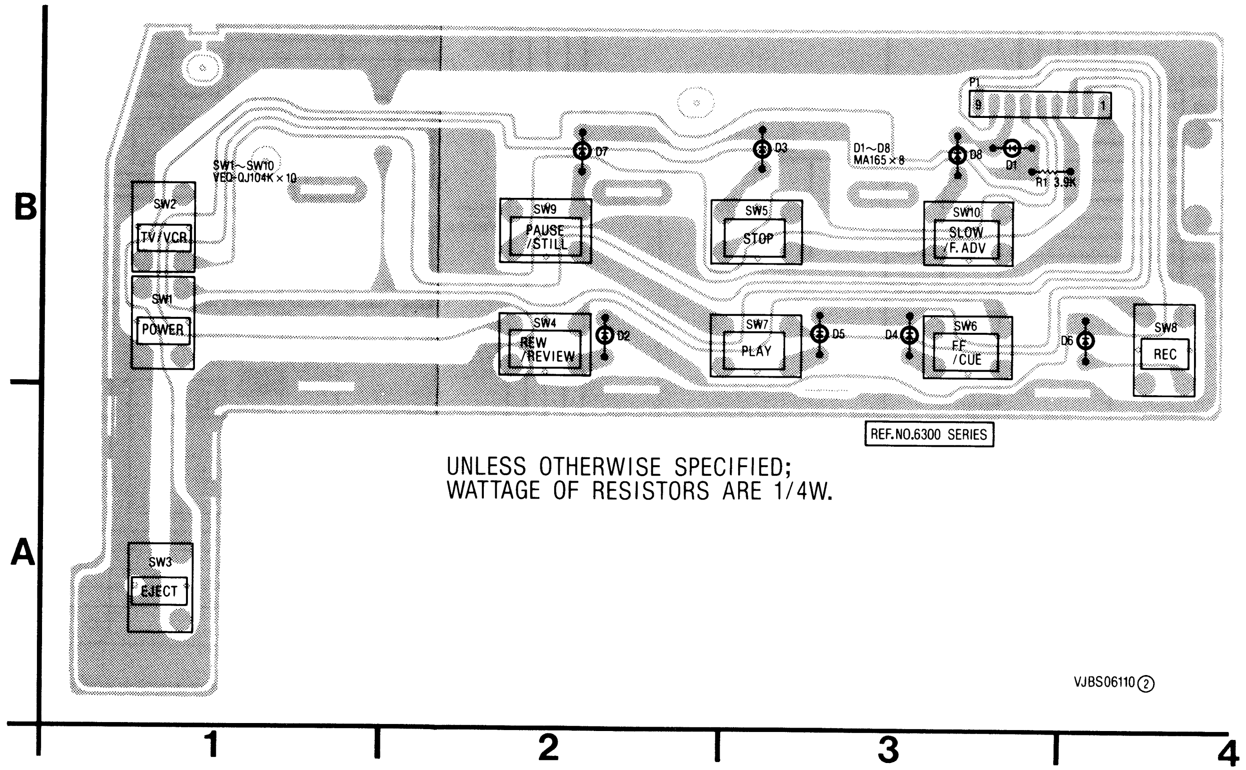
4-1
POWER SUPPLY CIRCUIT
OPERATION CIRCUIT

NOTE: REF. NO. ON. C.B.A. IS PRINTED AS FOLLOWS.
EXAMPLE: C.B.A.···R2, REF. NO. 6300 SERIES
SCHEMATIC DIAGRAM···R6302
(R6302 IS ABBREVIATED TO R2)



OPERATION C.B.A. VEPS06110A1

VOLTAGE MEASUREMENT: COLOR BAR SIGNAL IN SP REC MODE.



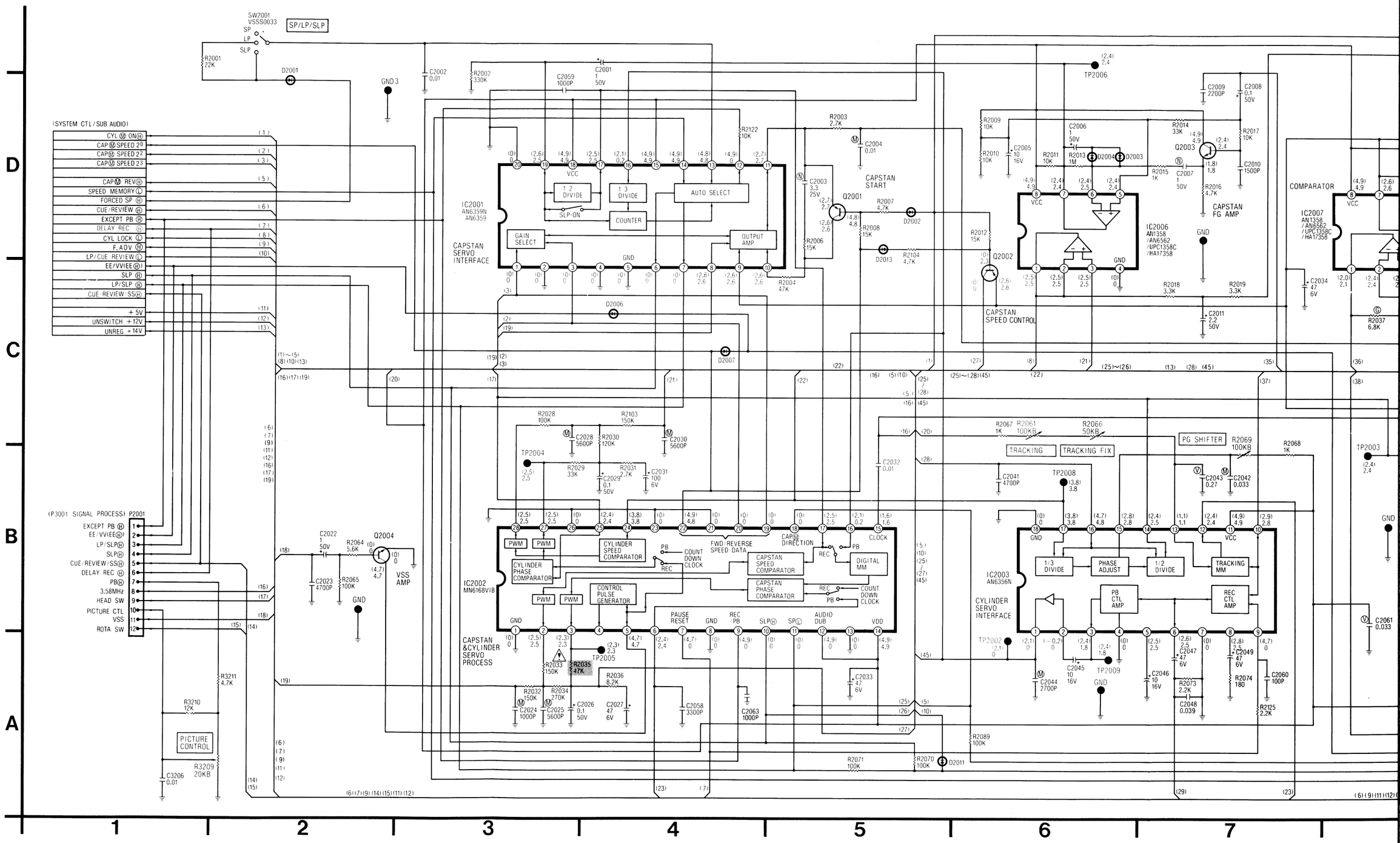
P6301

1	GND
2	TV/VCR SW
3	IR POWER SW
4	SCAN 1
5	SCAN 2
6	DATA IN11
7	DATA IN10
8	DATA IN 9
9	DATA IN 8

4-2
SERVO
SCHEMATIC DIAGRAM (MAIN C.B.A.

MAIN SCHEMATIC DIAGRAM (SERVO SECTION)

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.

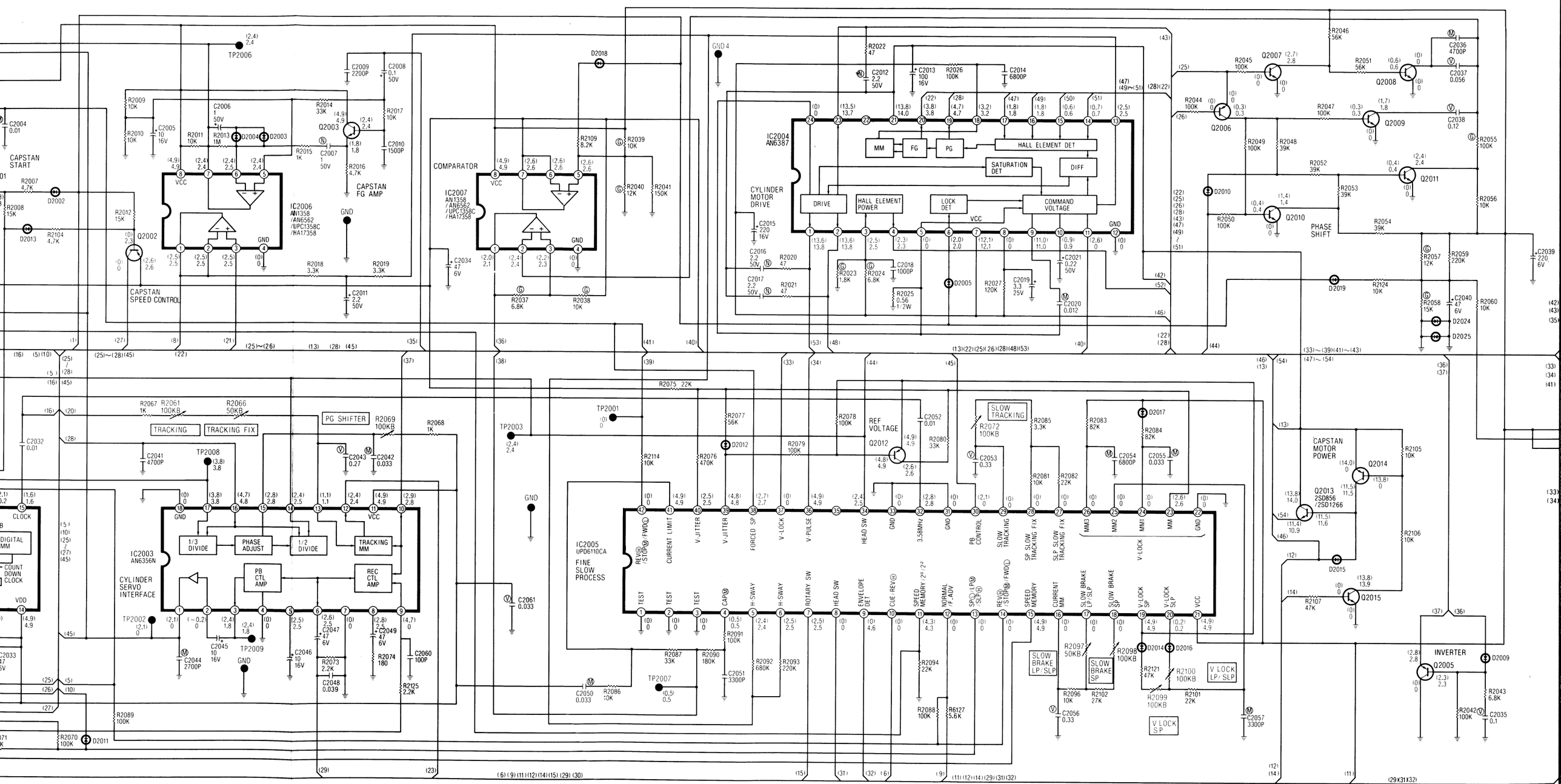


IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.

VOLTAGE MEASUREMENT:
COLOR BAR SIGNAL IN SP REC MODE WITH BRACKET.
COLOR BAR SIGNAL IN SP PLAY MODE WITHOUT BRACKET.

CALLOUTS NEXT TO WIRING PLUGS INDICATE CONNECTIONS TO OTHER SCHEMATIC DIAGRAM.

SPECIAL NOTE:
ALL INTEGRATED CIRCUITS AND
ELECTROSTATICALLY SENSITIVE
HANDLING TECHNIQUES DESCRIB
(ES) DEVICES" SECTION OF THI

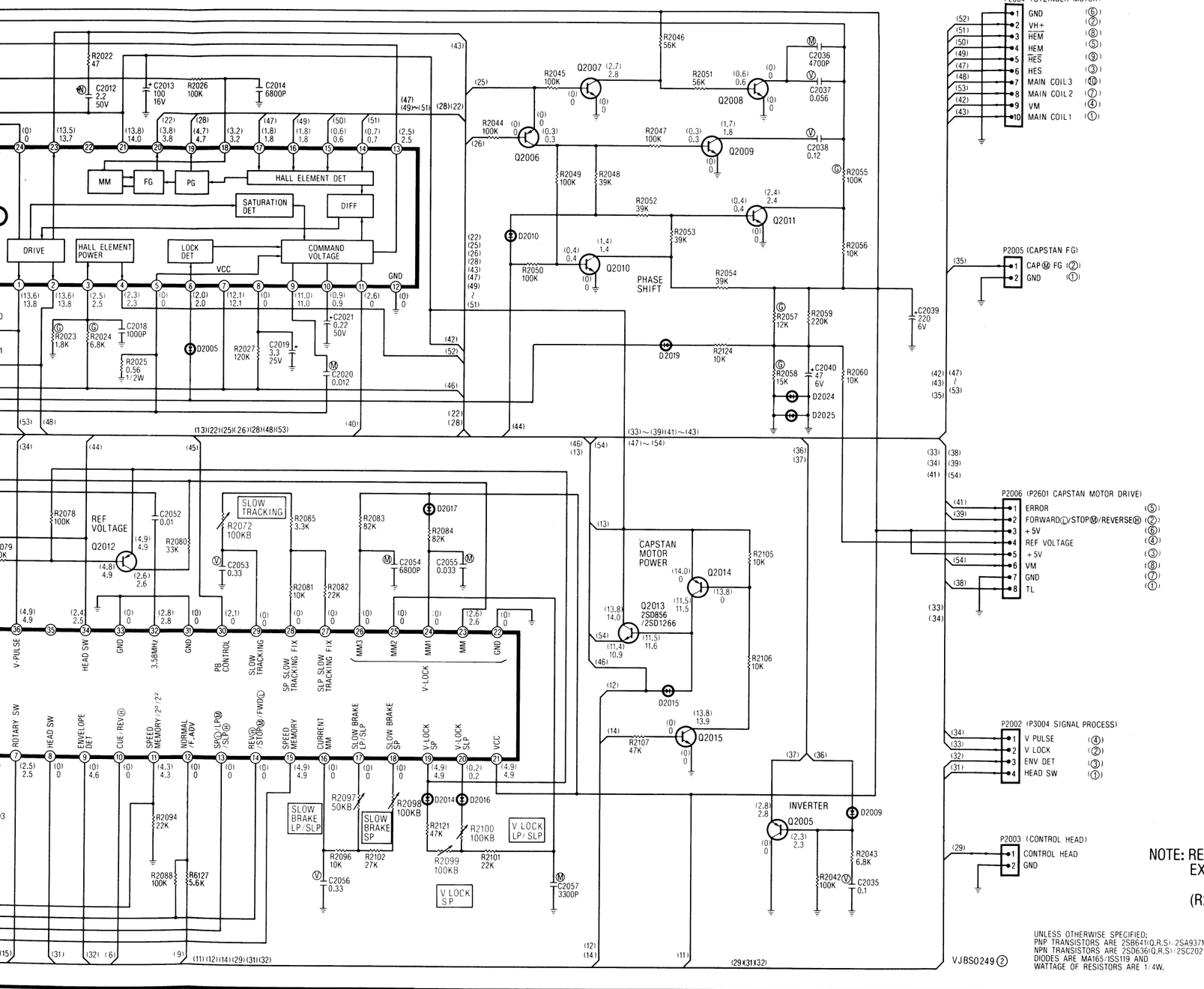


5 6 7 8 9 10 11 12 13

RACKET.
UT BRACKET.

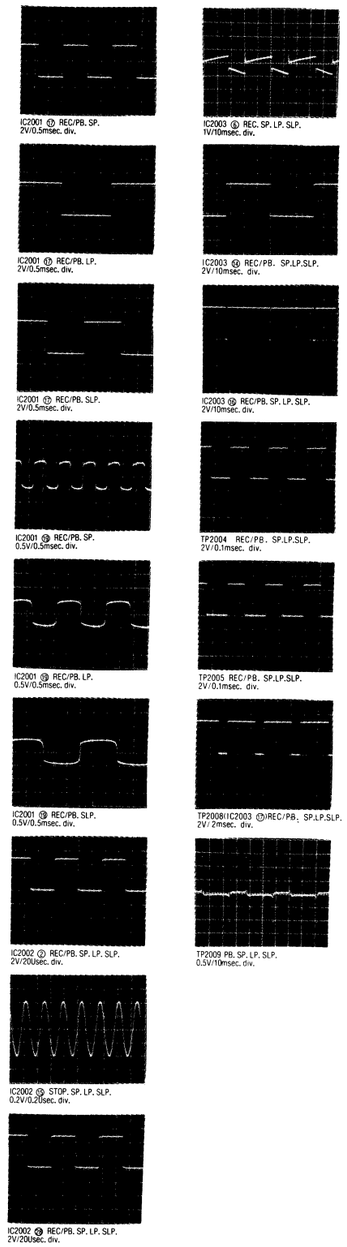
CALLOUTS NEXT TO WIRING PLUGS INDICATE
CONNECTIONS TO OTHER SCHEMATIC DIAGRAM.

SPECIAL NOTE:
ALL INTEGRATED CIRCUITS AND MANY OTHER SEMICONDUCTOR DEVICES ARE ELECTROSTATICALLY SENSITIVE AND THEREFORE REQUIRE THE SPECIAL HANDLING TECHNIQUES DESCRIBED UNDER THE "ELECTROSTATICALLY SENSITIVE (ES) DEVICES" SECTION OF THIS SERVICE MANUAL.



PV1525 PV1530

SERVO SCHEMATIC DIAGRAM	
Q2001	5-D
Q2002	6-C
Q2003	7-D
Q2004	2-B
Q2005	13-A
Q2006	12-D
Q2007	12-D
Q2008	13-D
Q2009	13-D
Q2010	12-D
Q2011	13-D
Q2012	10-B
Q2013	12-B
Q2014	12-B
Q2015	12-B



NOTE: REF. NO. ON C.B.A. IS PRINTED AS FOLLOWS.
EXAMPLE: C.B.A.···R2, REF. NO. 2000 SERIES SCHEMATIC DIAGRAM···R2002
(R2002 IS ABBREVIATED TO R2)

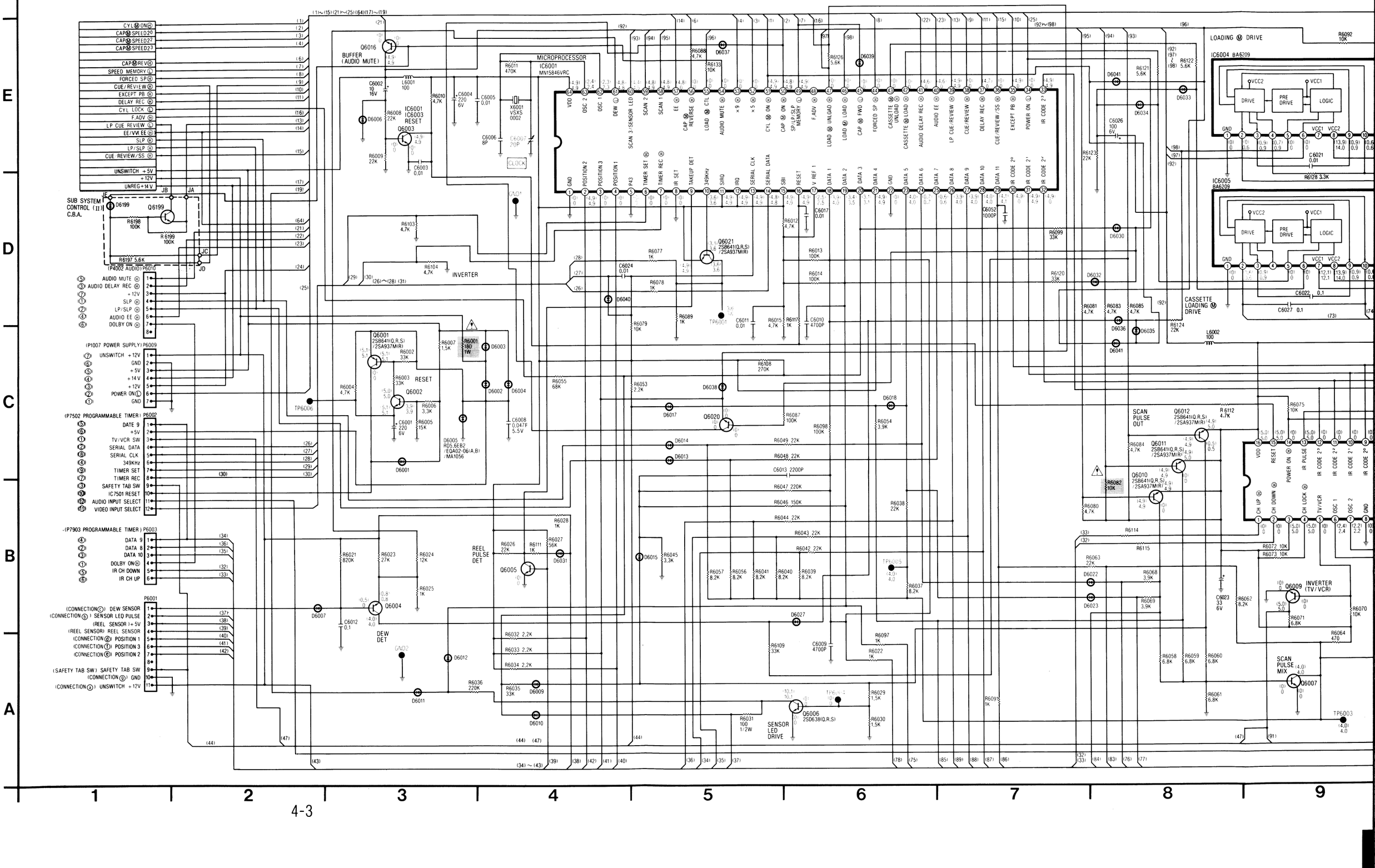
UNLESS OTHERWISE SPECIFIED:
PNP TRANSISTORS ARE 2SB641(Q,R,S)/2SA937(M/R).
NPN TRANSISTORS ARE 2SD636(Q,R,S)/2SC2021(M/R)
DIODES ARE MA165/1SS119 AND
WATTAGE OF RESISTORS ARE 1/4W.

10 11 12 13 14

MAIN SCHEMATIC DIAGRAM (SUB AUDIO/SYSTEM CONTROL SECTION) PV-1530

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.

VOLTAGE MEASUR
COLOR BAR
COLOR BAR

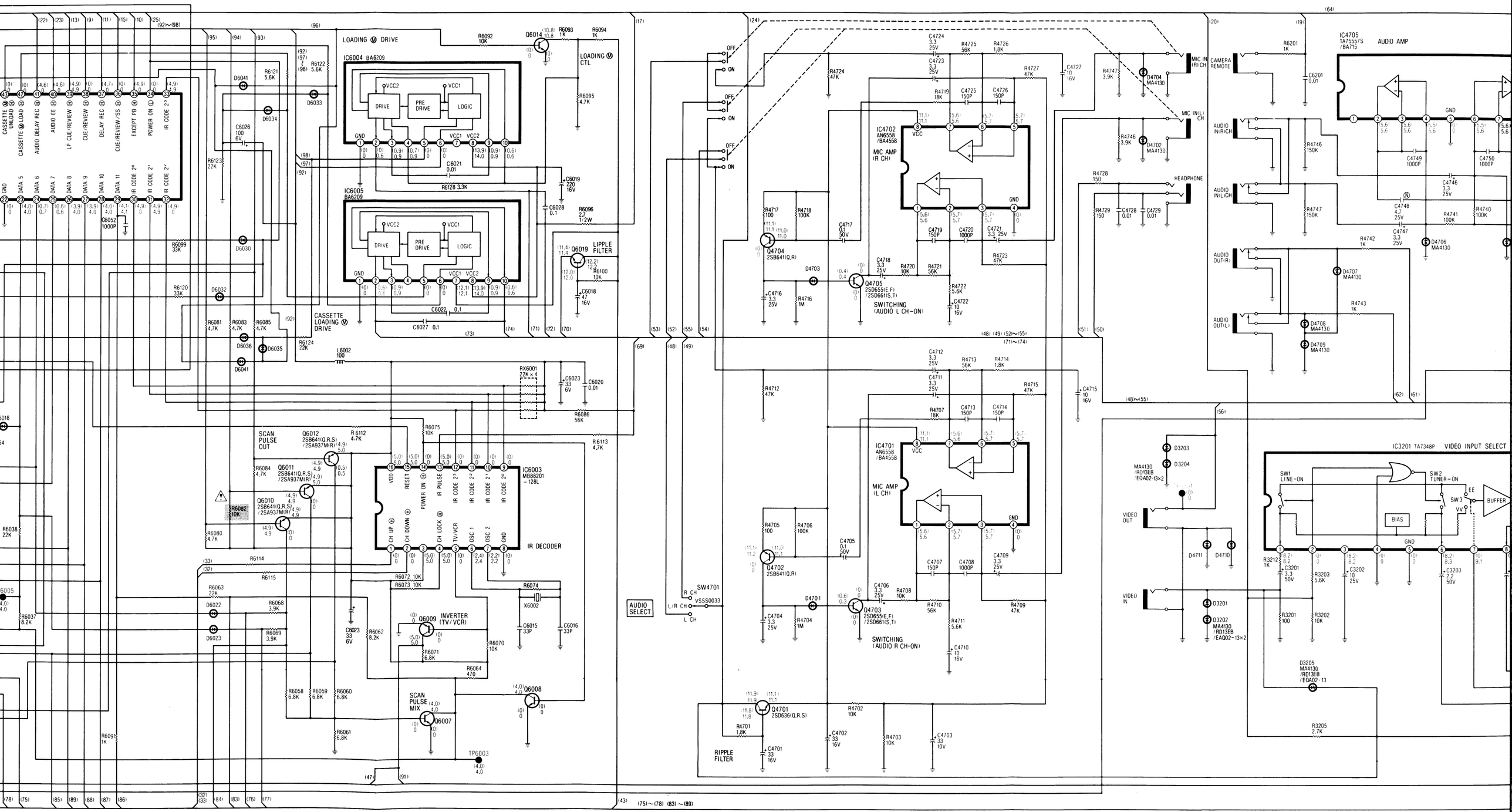


IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.

VOLTAGE MEASUREMENT:
COLOR BAR SIGNAL IN SP REC MODE WITH BRACKET.
COLOR BAR SIGNAL IN SP PLAY MODE WITHOUT BRACKET.

CALLOUTS NEXT TO WIRING PLUGS INDICATE CONNECTIONS TO OTHER SCHEMATIC DIAGRAM.

SPECIAL NOTE:
ALL INTEGRATED CIRCUITS AND MANY OTHER SEMICONDUCTOR DEVICES ARE ELECTROSTATICALLY SENSITIVE AND THEREFORE REQUIRE THE SPECIAL HANDLING TECHNIQUES DESCRIBED UNDER THE "ELECTROSTATICALLY SENSITI (ES) DEVICES" SECTION OF THIS SERVICE MANUAL.



7 8 9 10 11 12 13 14 15

CALLOUTS NEXT TO WIRING PLUGS INDICATE CONNECTIONS TO OTHER SCHEMATIC DIAGRAM.

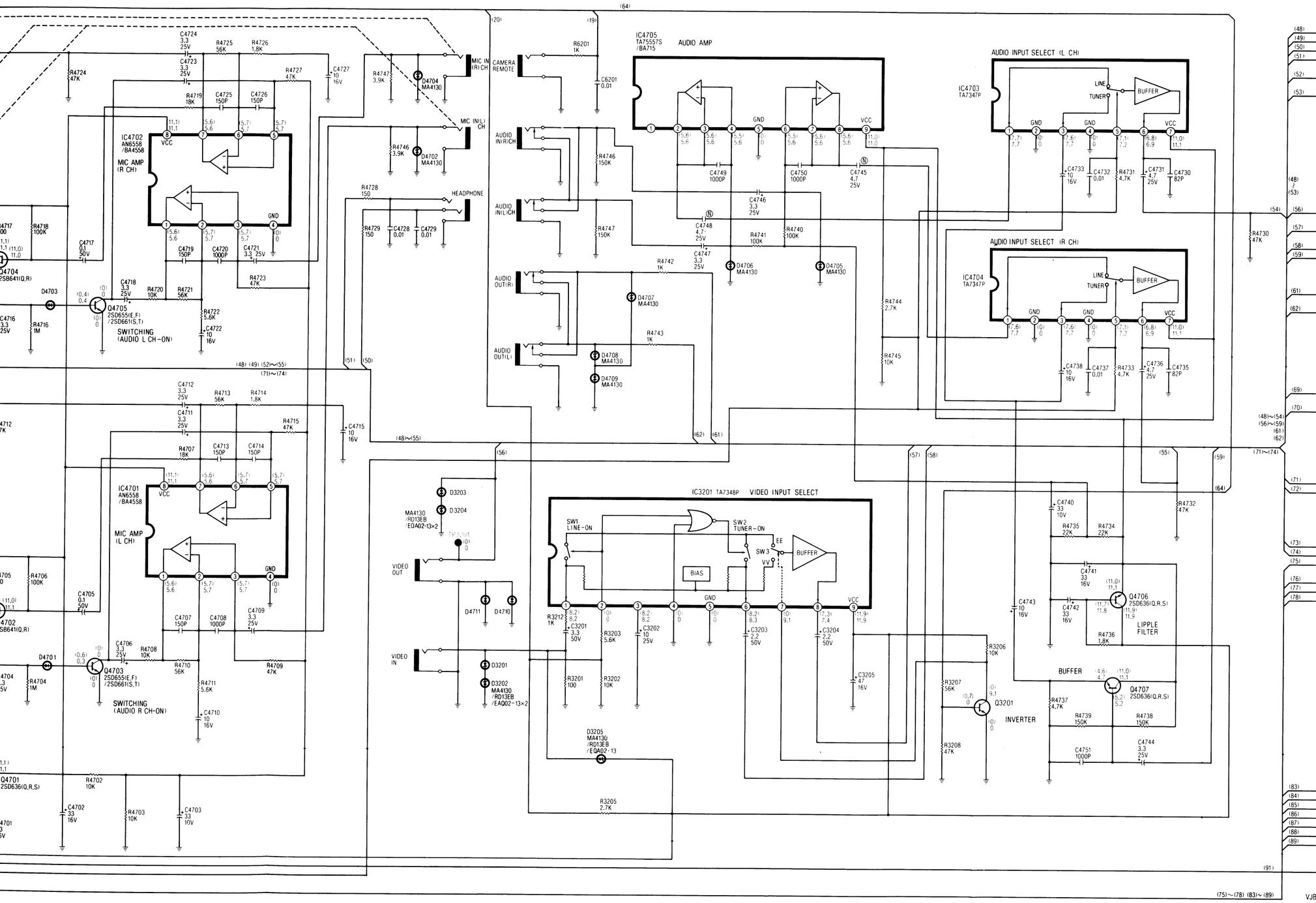
SPECIAL NOTE:
ALL INTEGRATED CIRCUITS AND MANY OTHER SEMICONDUCTOR DEVICES ARE ELECTROSTATICALLY SENSITIVE AND THEREFORE REQUIRE THE SPECIAL HANDLING TECHNIQUES DESCRIBED UNDER THE "ELECTROSTATICALLY SENSITIVE (ES) DEVICES" SECTION OF THIS SERVICE MANUAL.

SYSTEM CONTROL SECTION

NOTE: REF. NO. ON C.B.A. IS PRINTED AS FOLLOWS.
EXAMPLE: C.B.A.···R2, REF. NO. 6000 SERIES
SCHEMATIC DIAGRAM···R6002
(R6002 IS ABBREVIATED TO R2)

SUB AUDIO SECTION

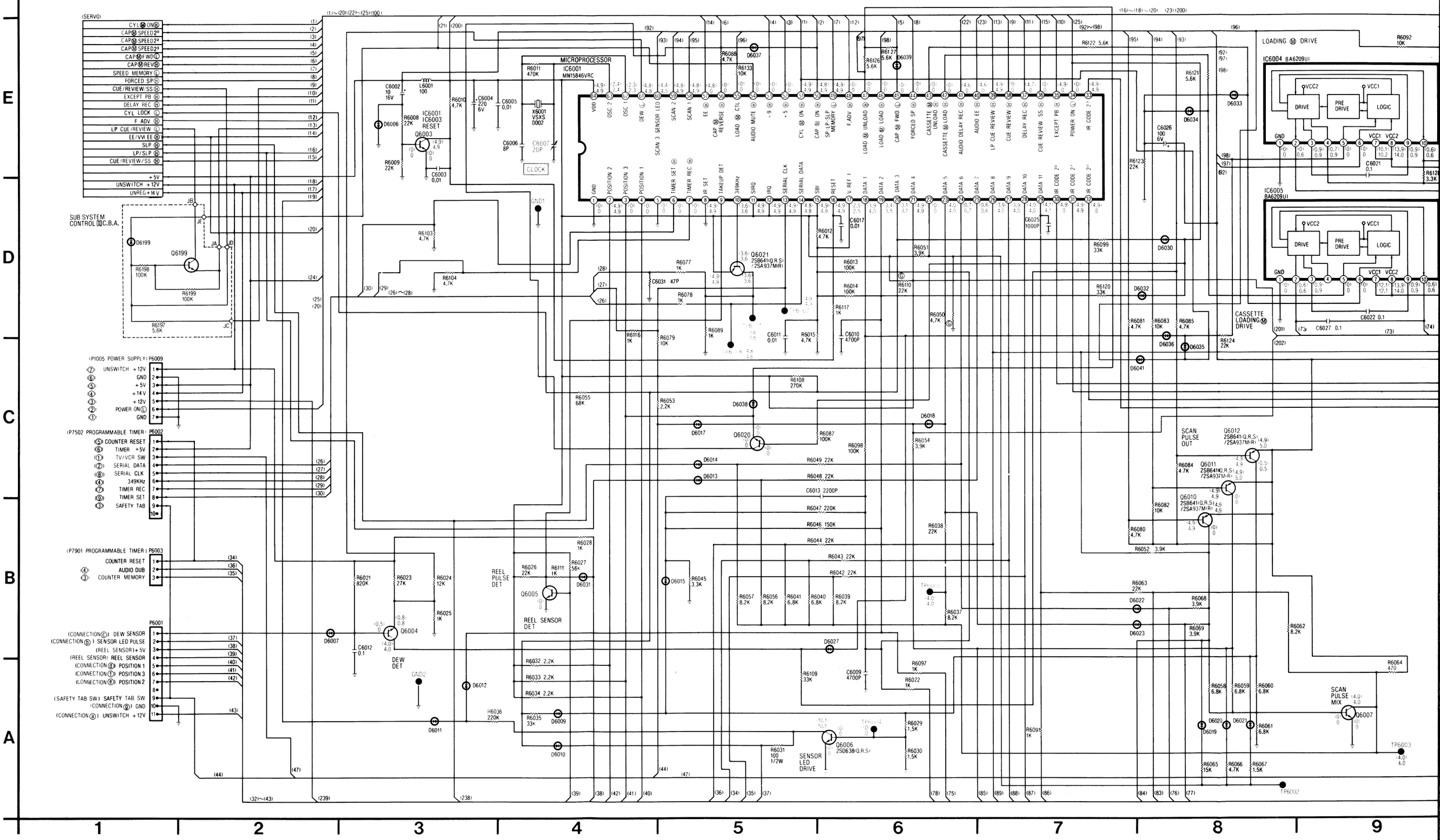
NOTE: REF. NO. ON C.B.A. IS PRINTED AS FOLLOWS.
EXAMPLE: C.B.A.···R2, REF. NO. 4700 SERIES
SCHEMATIC DIAGRAM···R4702
(R4702 IS ABBREVIATED TO R2)



MAIN SCHEMATIC DIAGRAM (AUDIO/SYSTEM CONTROL SECTION) PV-1525

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.

VOLTAGE MEASUREMENT:
COLOR BAR SIGNAL IN SP R
COLOR BAR SIGNAL IN SP P



PORTANT SAFETY NOTICE:
MPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE SPECIAL
ARACTERISTICS IMPORTANT FOR SAFETY.
EN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE
CIFIED PARTS.

VOLTAGE MEASUREMENT:
COLOR BAR SIGNAL IN SP REC MODE WITH BRACKET.
COLOR BAR SIGNAL IN SP PLAY MODE WITHOUT BRACKET.

CALLOUTS NEXT TO WIRING PLUGS INDICATE CONNECTIONS TO OTHER SCHEMATIC DIAGRAM.

SPECIAL NOTE:
ALL INTEGRATED CIRCUITS AND MANY OTHER SEMICONDUCTOR DEVICES ARE ELECTROSTATICALLY SENSITIVE AND THEREFORE REQUIRE THE SPECIAL HANDLING TECHNIQUES DESCRIBED UNDER THE "ELECTROSTATICALLY SENSITIVE (ES) DEVICES" SECTION OF THIS SERVICE MANUAL.

SYSTEM CON
NOTE: REF. NO. C
EXAMPLE:
SCHE
(R6002 IS

LOADING Ⓜ DRIVE
IC6004 BA6209U1
IC6005 BA6209U1
CASSETTE LOADING Ⓜ DRIVE
LOADING Ⓜ CTL
RIPPLE FILTER
SCAN PULSE OUT
SCAN PULSE MIX
AUDIO INPUT SELECT
IC6002 UPC393 /HA17393 /AN6914
WIRED REMOTE DET
MIC IN
IC4002 TA7361P /UPC1513HA
REMOTE
CAMERA REMOTE
AUDIO IN
AUDIO OUT
IC4701 AN6558 /BA4558
MIC AMP
SWITCHING (MIC–OFF)
VIDEO SWITCH (EE-ON)
VIDEO IN
VIDEO OUT
AUDIO SELECT
SW4701 VSSS0033
RIPPLE FILTER
SWITCHING (LP/SLP-ON)

7	8	9	10	11	12	13	14	15

EXT TO WIRING PLUGS INDICATE
S TO OTHER SCHEMATIC DIAGRAM.

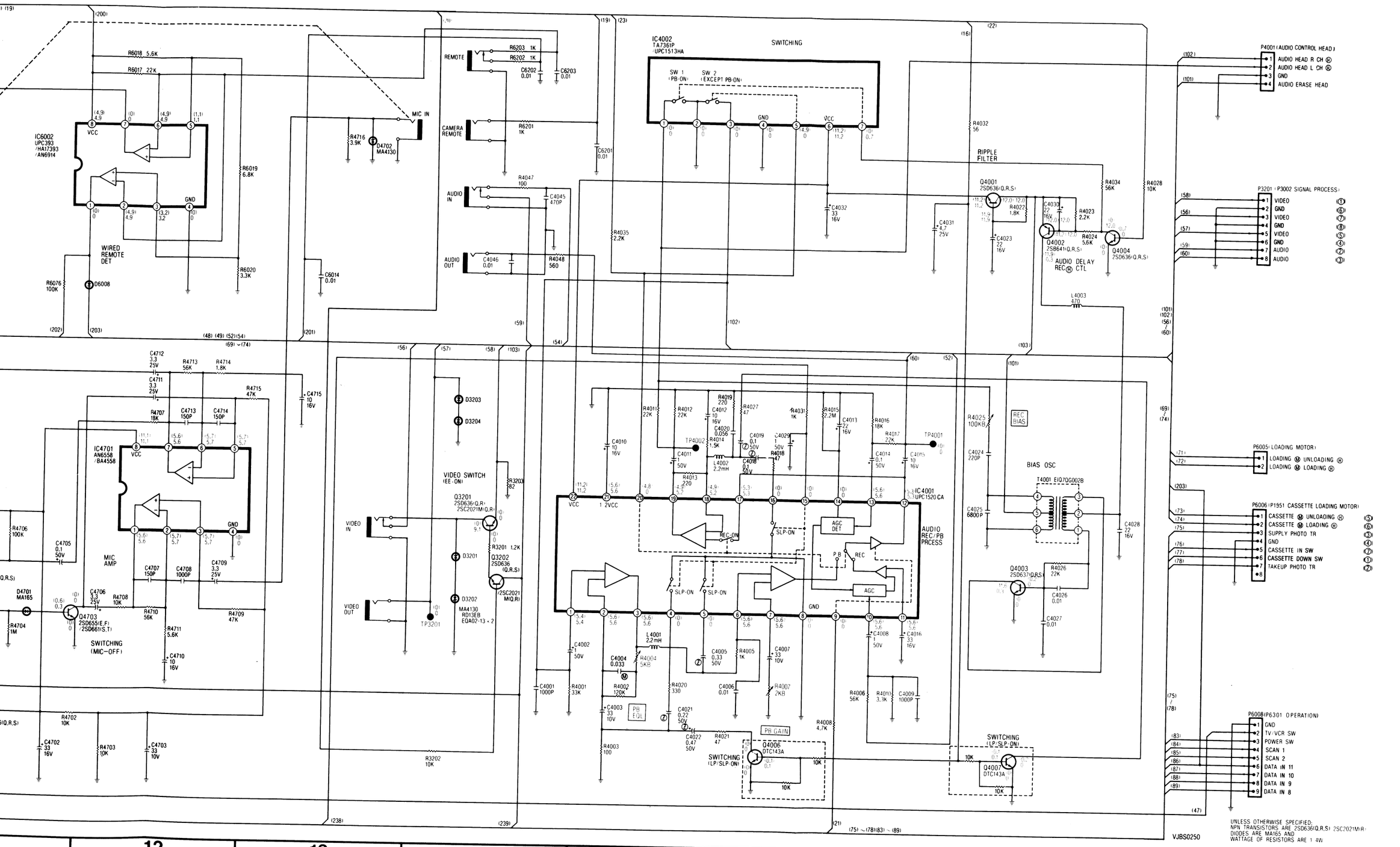
SPECIAL NOTE:
ALL INTEGRATED CIRCUITS AND MANY OTHER SEMICONDUCTOR DEVICES ARE ELECTROSTATICALLY SENSITIVE AND THEREFORE REQUIRE THE SPECIAL HANDLING TECHNIQUES DESCRIBED UNDER THE "ELECTROSTATICALLY SENSITIVE (ES) DEVICES" SECTION OF THIS SERVICE MANUAL.

SYSTEM CONTROL SECTION

NOTE: REF. NO. ON C.B.A. IS PRINTED AS FOLLOWS.
EXAMPLE: C.B.A.···R2, REF. NO. 6000 SERIES
SCHEMATIC DIAGRAM···R6002
(R6002 IS ABBREVIATED TO R2)

AUDIO SECTION

NOTE: REF. NO. ON C.B.A. IS PRINTED AS FOLLOWS.
EXAMPLE: C.B.A.···R2, REF. NO. 4000 SERIES
SCHEMATIC DIAGRAM···R4002
(R4002 IS ABBREVIATED TO R2)



IC6001 MATRIX CHART

IC6001 KEY MATRIX

DATA IN	SCAN OUT		
PIN NO.	59 (SCAN 2)	58 (SCAN 1)	
23 (DATA 5)	SAFETY TAB	CASSETTE UP	———
24 (DATA 6)	CASSETTE DOWN	CASSETTE IN	SLP Ⓗ
25 (DATA 7)	———	———	LP/SLP Ⓗ
26 (DATA 8)	FF	PLAY	AUDIO DUB Ⓛ
27 (DATA 9)	REW	REC	COUNTER RESET Ⓛ
28 (DATA 10)	SLOW/FA	EJECT	MEMORY COUNTER Ⓛ
29 (DATA 11)	STOP	PAUSE	POWER Ⓛ

IC6001 SAFETY DEVICE

SENSOR LED PULSE	DATA IN		
PIN NO.	18 (DATA 1)	19 (DATA 2)	20 (DATA 3)
60 (H' LEVEL)	DEW Ⓛ	REMOTE PAUSE Ⓛ	CYLINDER LOCK Ⓛ
60 (L' LEVEL)	TAKEUP PHOTO TR Ⓛ	SUPPLY PHOTO TR Ⓛ	AUTO STOP Ⓛ

IC6001 MODE SWITCH POSITION CODE

DATA IN / MODE / SWITCH POSITION	PIN 2 (POSITION 2)	PIN 4 (POSITION 1)	PIN 3 (POSITION 3)
EJECT	L	H	H
STOP	H	L	H
FF/REW	H	L	H
REC/PAUSE	H	L	L
REVIEW	H	L	L
PLAY	L	H	L

REF.NO.	Q2001			Q2002			Q2003			Q2004			Q2005			Q2006		
MODE	E	B	C	E	B	C	E	B	C	E	B	C	E	B	C	E	B	C
STOP	0.8	0.3	0.8	1.8	1.2	1.8	1.8	2.3	4.9	0	0	4.7	0.8	0.3	0	0	0	0.3
REC	2.7	4.8	2.6	2.6	0	2.3	1.8	2.4	4.9	0	0	4.7	2.8	2.3	0	0	0	0.3
PLAY	2.7	4.8	2.6	2.6	4.9	2.3	1.8	2.4	4.9	0	0	4.7	2.8	2.3	0	0	0	0.3
CUE	2.7	4.8	2.6	2.6	4.9	4.5	1.9	2.4	4.9	0	0	4.6	2.8	2.3	0	0	0	0.3
REV	2.7	4.9	2.7	2.6	4.9	2.4	1.9	2.4	4.9	0	0	4.5	2.8	2.3	0	0	0	0.3
F.ADV.	1.2	0.6	1.2	2.6	2.0	2.6	1.8	2.4	4.9	0	0	4.6	2.8	2.3	0	0	0	0.3
SLOW(1/4)	1.2	0.6	1.2	2.6	2.0	2.6	1.8	2.4	4.9	0	0	4.7	2.8	2.3	0	0	0	0.3
REF.NO.	Q2007			Q2008			Q2009			Q2010			Q2011			Q2012		
MODE	E	B	C	E	B	C	E	B	C	E	B	C	E	B	C	E	B	C
STOP	0	0	2.8	0	0.6	0	0	0.3	0	0	0.2	2.8	0	0.7	0	4.9	4.9	1.8
REC	0	0	2.7	0	0.6	0	0	0.3	1.7	0	0.4	1.4	0	0.4	2.4	4.9	4.8	2.6
PLAY	0	0	2.8	0	0.6	0	0	0.3	1.8	0	0.4	1.4	0	0.4	2.4	4.9	4.9	2.6
CUE	0	0	2.8	0	0.6	0	0	0.3	1.8	0	0.4	1.4	0	0.4	2.4	4.9	4.9	2.6
REV	0	0	2.8	0	0.6	0	0	0.3	1.8	0	0.4	1.4	0	0.4	2.4	4.9	4.9	2.6
F.ADV.	0	0	2.8	0	0.6	0	0	0.3	1.8	0	0.4	1.4	0	0.4	2.4	4.9	4.8	2.7
SLOW(1/4)	0	0	2.8	0	0.6	0	0	0.3	1.8	0	0.4	1.4	0	0.4	2.4	4.9	4.9	2.7
REF.NO.	Q2013			Q2014			Q2015											
MODE	E	B	C	E	B	C	E	B	C									
STOP	11.2	11.8	14.0	14.0	14.0	11.8	0	0	14.0									
REC	11.4	11.5	13.8	14.0	13.8	11.5	0	0	13.8									
PLAY	10.9	11.6	14.0	0	0	11.5	0	0	13.9									
CUE	13.3	14.0	14.0	14.0	13.2	13.9	0	0.7	0									
REV	13.3	14.0	14.0	14.0	13.3	14.0	0	0.7	0									
F.ADV.	13.3	14.0	14.0	14.0	13.3	14.0	0	0.7	0									
SLOW(1/4)	13.3	14.0	14.0	14.0	13.3	13.9	0	0.7	0									
REF.NO.	Q6003			Q6004			Q6005			Q6006			Q6007			Q6010		
MODE	E	B	C	E	B	C	E	B	C	E	B	C	E	B	C	E	B	C
STOP	0	0	4.9	0.8	0	4.0	0	0	4.9	0	0	10.2	0	0	4.0	4.9	4.9	0
FF	0	0	4.9	0.8	0	4.0	0	0.3	2.8	0	0	10.2	0	0	4.0	5.0	5.0	0
REW	0	0	4.9	0.8	0.5	4.0	0	0.3	2.8	0	0	10.2	0	0	4.0	4.9	4.9	0
REC	0	0	4.9	0.8	0.5	4.0	0	★	★	0	0	10.1	0	0	4.0	4.9	4.9	0
PLAY	0	0	4.9	0.8	0	4.0	0	★	★	0	0	10.1	0	0	4.0	4.9	4.9	0
CUE	0	0	4.9	0.8	0.5	4.0	0	0.3	★	0	0	10.2	0	0	4.0	4.9	4.9	0
REV	0	0	4.9	0.8	0.5	4.0	0	0.3	★	0	0	10.2	0	0	4.0	5.0	4.9	0
F.ADV.	0	0	4.9	0.8	0.5	4.0	0	0	4.9	0	0	10.2	0	0	4.0	4.9	4.9	0
SLOW(1/4)	0	0	4.9	0.8	0.5	4.0	0	0.7	4.9	0	0	10.2	0	0	4.0	4.9	4.9	0
REF.NO.	Q6011			Q6012			Q6014			Q6015			Q6016			Q6017		
MODE	E	B	C	E	B	C	E	B	C	E	B	C	E	B	C	E	B	C
STOP	5.0	4.9	0	5.0	4.8	0.5	0	0	10.8	10.1	10.8	12.2	0	0	4.9	0	0.6	0
FF	4.9	4.9	0	4.9	4.9	0.5	0	0	10.8	10.2	10.8	12.1	0	0	4.9	0	0.6	0
REW	5.0	5.0	0	5.0	4.8	0.5	0	0	10.8	10.2	10.8	12.1	0	0	4.9	0	0.6	0
REC	4.9	4.9	0	4.9	4.9	0.5	0	0	10.8	10.1	10.8	12.1	0	0	4.9	0	0.6	0
PLAY	5.0	4.9	0	5.0	4.9	0.5	0	0	10.8	10.2	10.9	12.2	0	0	4.9	0	0.6	0
CUE	5.0	4.9	0	5.0	4.9	0.5	0	0	10.8	10.2	10.8	12.2	4.3	4.9	4.9	0	0.6	0
REV	5.0	4.9	0	4.9	4.9	0.5	0	0	10.8	10.2	10.9	12.2	4.2	4.9	4.9	0	0.6	0
F.ADV.	5.0	4.9	0	4.9	4.9	0.5	0	0	10.8	10.2	10.9	12.2	4.2	4.9	4.9	0	0.6	0
SLOW(1/4)	5.0	4.9	0	4.9	4.9	0.5	0	0	10.8	10.2	10.9	12.2	4.2	4.9	4.9	0	0.6	0
REF.NO.	Q6018																	
MODE	E	B	C															
STOP	0	0.6	0															
FF	0	0.6	0															
REW	0	0.6	0															
REC	0	0.6	0															
PLAY	0	0.6	0															
CUE	0	0.6	0															
REV	0	0.6	0															
F.ADV.	0	0.6	0															
SLOW(1/4)	0	0.6	0															

REF.NO.	IC2001																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
STOP	0	0	0	0	0	0	0	0.9	1.8	1.8	0.8	4.9	4.8	4.9	4.9	0	4.9	4.9	1.8	0
REC	0	0	0	0	0	0	0	2.6	2.6	2.6	2.7	4.9	4.8	4.9	4.9	2.1	2.5	4.9	2.6	0
PLAY	0	0	0	0	0	0	0	2.6	2.6	2.6	2.7	0	4.8	4.9	4.9	0.2	2.5	4.9	2.5	0
CUE	0	0	4.9	0	0	0	0	2.6	2.6	2.6	2.7	0	4.8	4.9	4.9	0.2	2.3	4.9	2.6	0
REV	0	0	4.9	0	0	0	0	2.6	2.6	2.6	2.6	0	4.8	4.9	4.9	0	2.3	5.0	2.6	0
F.ADV.	0	0	0	0	0	0	0	1.5	2.6	2.6	1.3	0	4.8	0	4.9	0	★	4.9	2.6	0
SLOW(1/4)	0	0	0	0	0	0	0	1.5	2.6	2.6	1.3	0	4.8	0	4.9	0	★	4.9	2.6	0
REF.NO.	IC2002																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
STOP	0	0.2	2.5	3.0	4.7	0	0	0	4.9	0	0	4.9	0	4.9	1.6	0	0	0	0	0
REC	0	2.5	2.3	3.0	4.7	2.4	4.7	0	4.9	0	0	4.9	0	4.9	1.6	2.1	2.5	0	0	0
PLAY	0	2.5	2.3	2.7	4.7	2.4	0	0	0	0	0	0	0	4.9	1.6	0.2	2.5	0	0	0
CUE	0	3.5	0.3	2.6	4.6	2.3	0	0	0	0	0	0	0	4.9	1.6	0	2.3	0	0	4.9
REV	0	3.5	0.2	2.8	4.7	2.2	0	0	0	0	0	0	0	4.9	1.6	0.2	2.3	4.9	0	4.9
F.ADV.	0	0.5	2.5	2.7	4.5	2.2	0	0	0	0	0	4.9	0	4.9	1.6	0	★	0	0	0
SLNW(1/4)	0	0.5	2.5	2.7	4.5	2.3	0	0	0	0	0	4.9	0	4.9	1.6	0	★	0	0	0
REF.NO.	IC2002																			
MODE	21	22	23	24	25	26	27	28												
STOP	0	0	0	4.9	4.9	0	2.4	0.2												
REC	0	4.9	0	3.8	2.4	0	2.5	2.5												
PLAY	0	4.8	0	3.8	2.4	0	2.5	2.5												
CUE	0	4.9	0	3.8	2.5	0	2.4	2.6												
REV	0	4.8	0	3.8	2.5	0	2.6	2.5												
F.ADV.	0	0	0	3.8	2.4	0	2.5	2.5												
SLOW(1/4)	0	0	0	3.8	2.5	0	2.5	2.5												
REF.NO.	IC2003																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18		
STOP	0	0.5	1.8	0	2.5	2.5	0	2.5	0	0.8	4.9	0	0	4.9	0	4.9	4.9	0		
REC	2.1	−0.2	2.4	0	2.5	2.6	0	2.8	4.7	2.9	4.9	2.4	1.1	2.4	2.8	4.7	3.8	0		
PLAY	0	0	1.8	0	2.5	2.5	0	2.5	0	2.8	4.9	2.4	1.1	2.5	2.8	4.8	3.8	0		
CUE	0.2	−0.4	1.8	0	2.5	2.5	0	2.5	0	2.9	4.9	2.3	1.1	2.5	2.8	4.7	3.8	0		
REV	0	0.5	1.8	0	2.5	2.5	0	2.5	0	2.8	5.0	2.4	1.1	2.5	2.8	4.7	3.8	0		
F.ADV.	0	0.4	1.8	0	2.5	2.5	0	2.5	0	2.8	4.9	2.4	1.1	2.5	2.8	4.7	3.8	0		
SLOW(1/4)	0	0.4	1.8	0	2.5	2.5	0	2.5	0	2.8	4.9	2.4	1.1	2.5	2.8	4.7	3.8	0		
REF.NO.	IC2004																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
STOP	14.0	14.0	2.5	2.3	0	0.6	12.1	0	11.7	0.8	1.8	0	1.1	0.8	0.5	1.9	1.7	7.0	4.9	4.9
REC	13.6	13.6	2.5	2.3	0	2.0	12.1	0	11.0	0.9	2.6	0	2.5	0.7	0.6	1.8	1.8	3.2	4.7	3.8
PLAY	13.8	13.8	2.5	2.3	0	2.0	12.1	0	11.0	0.9	0	0	2.5	0.7	0.6	1.8	1.8	3.2	4.7	3.8
CUE	13.8	13.8	2.5	2.3	0	2.0	12.2	0	11.1	0.9	2.6	0	2.6	0.7	0.6	1.8	1.8	3.2	4.7	3.8
REV	13.8	13.8	2.6	2.3	0	2.0	12.2	0	11.1	0.9	2.6	0	2.6	0.7	0.6	1.8	1.8	3.2	4.7	3.8
F.ADV.	13.8	13.7	2.5	2.3	0	2.0	12.2	0	11.1	0.9	2.6	0	2.6	0.7	0.6	1.8	1.8	3.2	4.7	3.8
SLOW(1/4)	13.8	13.7	2.5	2.3	0	2.0	12.1	0	11.1	0.9	2.6	0	2.6	0.7	0.6	1.8	1.8	3.2	4.7	3.8
REF.NO.	IC2004				IC2005															
MODE	21	22	23	24	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
STOP	14.0	0	14.0	0	0	0	0	0.5	1.0	1.1	4.9	0	0	0	4.2	0	0	2.5	4.9	
REC	13.8	0	13.5	0	0	0	0	0.5	2.4	2.5	2.5	0	0	0	4.3	0	0	0	4.9	
PLAY	14.0	0	13.7	0	0	0	0	0.5	2.4	2.5	2.5	0	4.6	0	4.3	0	0	0	4.9	
CUE	14.0	0	13.7	0	0	0	0	0.5	2.4	2.5	2.5	0	4.6	4.9	4.3	0	0	0	4.9	
REV	14.0	0	13.8	0	0	0	0	0.5	2.4	2.5	2.5	0	4.7	4.9	4.3	0	0	4.9	4.9	
F.ADV.	14.0	0	13.7	0	0	0	0	4.0	2.4	2.5	0.3	2.3	2.5	0	0	0	0	0	0	
SLN	14.0	0	13.7	0	0	0	0	4.0	2.5	2.3	0.3	2.3	2.4	0	0	1.6	0	0	0	
REF.NO.	IC2005																			
MODE	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
STOP	0	0	0	4.9	0.2	4.9	0	1.8	0	0	0	0	0	0	0	0	2.8	0	0	0
REC	0	0	0	4.9	0.2	4.9	0	2.6	0	0	0	0	0	0	2.1	0	2.8	0	2.4	2.5
PLAY	0	0	0	4.9	0.2	4.9	0	2.6	0	0	0	0	0	0	0	0	2.8	0	2.5	2.5
CUE	0	0	0	4.9	0.3	4.9	0	2.6	0	0	0	0	0	0	0	0	2.8	0	2.5	2.5
REV	0	0	0	4.9	0.3	4.9	0	2.6	0	0	0	0	0	0	0	0	2.8	0	2.5	2.5
F.ADV.	0	0	0.3	4.9	0.3	4.9	0	2.6	0	0	0	0	0.2	0	0	0	2.8	0	2.5	2.5
SLOW(1/4)	0	0	0.3	4.9	0.3	5.0	0	2.6	0	0	0	2.0	0.2	0	0	0	2.8	0	2.5	2.5
REF.NO.	IC2005								IC2006											
MODE	36	37	38	39	40	41	42		1	2	3	4	5	6	7	8				
STOP	4.9	0	0.8	4.8	1.7	4.9	2.1		1.1	1.1	1.1	0	2.4	2.4	2.4	4.9				
REC	4.9	0	2.7	4.8	2.5	4.9	0		2.5	2.5	2.5	0	2.4	2.4	2.4	4.9				
PLAY	4.9	0	2.7	4.8	2.5	4.9	0		2.5	2.5	2.5	0	2.4	2.5	2.4	4.9				
CUE	4.9	0	2.7	4.8	2.5	4.9	0		2.5	2.5	2.5	0	2.4	2.5	2.4	4.9				
REV	4.8	0	2.7	4.8	2.5	4.9	4.8		2.5	2.5	2.5	0	2.4	2.5	2.4	4.9				
F.ADV.	4.8	0.3	0.4	4.7	2.4	★	0.5		2.5	2.5	2.5	0	2.4	2.5	2.4	4.9				
SLOW(1/4)	4.8	0.3	0.4	4.6	2.4	★	0.4		2.6	2.5	2.5	0	2.5	2.5	2.4	4.9				
REF.NO.	IC2007																			
MODE	1	2	3	4	5	6	7	8												
STOP	3	0.	2.8	0	1.8	1.8	1.8	4.9												
REC	2	2.4	2.2	0	2.6	2.6	2.6	4.9												
PLAY	2	2.4	2.3	0	2.6	2.6	2.6	4.9												
CUE	2.1	2.4	2.3	0	2.6	2.6	2.6	4.9												
REV	2.1	2.4	2.3	0	2.6	2.6	2.6	4.9												
F.ADV.	2.1	2.4	2.3	0	2.6	2.6	2.6	4.9												
SLOW(1/4)	2.1	2.4	2.3	0	2.6	2.6	2.6	4.9												

REF.NO.																				
MODE	1	2																		
STOP	0	0																		
FF	0	0																		
REW	0	0																		
REC	0	4.9																		
PLAY	0	4.9																		
CUE	0	0																		
REV	0	0																		
F.ADV.	0	4.9																		
SLOW(1/4)	0	4.9																		
REF.NO.																				
MODE	21	22																		
STOP	4.9	0																		
FF	4.9	0																		
REW	4.9	0																		
REC	4.9	0																		
PLAY	4.9	0																		
CUE	4.9	0																		
REV	4.9	0																		
F.ADV.	4.9	0																		
SLOW(1/4)	4.9	0																		
REF.NO.																				
MODE	41	42																		
STOP	0	0																		
FF	0	0																		
REW	0	0																		
REC	4.6	0																		
PLAY	0	0																		
CUE	0	0																		
REV	0	0																		
F.ADV.	0	0																		
SLOW(1/4)	0	0																		

IC6001

REF.NO.																				
MODE	61	62																		
STOP	4.8	2.3																		
FF	4.8	2.3																		
REW	4.8	2.3																		
REC	4.8	2.3																		
PLAY	4.8	2.3																		
CUE	4.8	2.3																		
REV	4.8	2.3																		
F.ADV.	4.8	2.3																		
SLOW(1/4)	4.8	2.3																		
REF.NO.																				
MODE	1	2																		
STOP	0	0.6																		
FF	0	0.6																		
REW	0	0.6																		
REC	0	0																		
PLAY	0	0.6																		
CUE	0	0.6																		
REV	0	0.6																		
F.ADV.	0	0.6																		
SLOW(1/4)	0	0.6																		

REF.NO.		
MODE	1	2
STOP	8.2	0
REC	8.2	0
PLAY	8.2	0
CUE	8.2	0
REV	8.2	0
REF.NO.		
MODE	1	2
STOP	5.6	5.7
REC	5.6	5.7
PLAY	5.6	5.7
REF.NO.		
MODE	1	2
STOP	7.7	0
REC	7.6	0
PLAY	7.7	0

	16	17	18	19	20
	0	4.9	4.9	1.8	0
	2.1	2.5	4.9	2.6	0
	0.2	2.5	4.9	2.5	0
	0.2	2.3	4.9	2.6	0
	0	2.3	5.0	2.6	0
	0	★	4.9	2.6	0
	0	★	4.9	2.6	0

	16	17	18	19	20
	0	0	0	0	0
	2.1	2.5	0	0	0
	0.2	2.5	0	0	0
	0	2.3	0	0	4.9
	0.2	2.3	4.9	0	4.9
	0	★	0	0	0
	0	★	0	0	0

	16	17	18		
	4.9	4.9	0		
	4.7	3.8	0		
	4.8	3.8	0		
	4.7	3.8	0		
	4.7	3.8	0		
	4.7	3.8	0		
	4.7	3.8	0		

	16	17	18	19	20
	1.9	1.7	7.0	4.9	4.9
	1.8	1.8	3.2	4.7	3.8
	1.8	1.8	3.2	4.7	3.8
	1.8	1.8	3.2	4.7	3.8
	1.8	1.8	3.2	4.7	3.8
	1.8	1.8	3.2	4.7	3.8

	11	12	13	14	15
	.2	0	0	2.5	4.9
	.3	0	0	0	4.9
	.3	0	0	0	4.9
	.3	0	0	0	4.9
	.3	0	0	4.9	4.9
		0	0	0	0
		1.6	0	0	0

	31	32	33	34	35
		2.8	0	0	0
		2.8	0	2.4	2.5
		2.8	0	2.5	2.5
		2.8	0	2.5	2.5
		2.8	0	2.5	2.5
		2.8	0	2.5	2.5
		2.8	0	2.5	2.5

3	
9	
9	
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9	
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9	

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REF.NO. / MODE	IC6001																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
STOP	0	0	4.9	4.9	0	0	0	4.9	0	3.6	4.9	4.9	4.9	4.9	4.9	4.9	2.5	3.9	3.5	2.0
FF	0	0	4.9	4.9	0	0	0	4.9	2.8	3.6	4.9	4.9	4.9	4.8	4.8	4.9	2.5	4.0	3.5	2.0
REW	0	0	4.9	4.9	0	0	0	4.9	2.8	3.6	4.9	4.9	4.9	4.9	4.9	4.9	2.5	4.0	3.5	2.0
REC	0	4.9	0	0	0	0	0	4.9	★	3.6	4.9	4.9	4.9	4.8	4.9	4.9	2.5	3.9	3.4	3.1
PLAY	0	4.9	0	0	0	0	0	4.9	★	3.6	4.9	4.9	4.9	4.8	4.9	4.9	2.5	4.0	3.5	3.1
CUE	0	0	4.9	4.9	0	0	0	4.9	2.8	3.6	4.9	4.9	4.9	4.8	4.9	4.9	2.5	4.0	3.5	2.0
REV	0	0	4.9	4.9	0	0	0	4.9	2.8	3.6	4.9	4.9	4.9	4.8	4.9	4.9	2.5	3.9	3.5	3.1
F.ADV.	0	4.9	0	0	0	0	0	4.9	0	3.6	4.9	4.9	4.9	4.8	4.9	4.9	2.5	4.0	3.5	3.1
SLOW(1/4)	0	4.9	0	0	0	0	0	4.9	0	3.6	4.9	4.9	4.9	4.8	4.9	4.9	2.5	4.0	3.5	3.1

REF.NO. / MODE	IC6001																			
	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
STOP	4.9	0	4.0	0.7	0.6	3.9	3.9	4.0	4.1	4.9	4.9	4.9	4.9	0	4.9	0	0	0	4.9	4.6
FF	4.9	0	4.0	0.7	0.7	4.0	4.0	4.0	4.1	4.9	4.9	4.2	4.9	0	4.9	0	0	0	4.9	4.6
REW	4.9	0	4.0	0.7	0.6	4.0	4.0	4.0	4.1	4.9	4.9	4.9	4.9	0	4.9	0	0	0	4.9	4.6
REC	4.9	0	4.0	0.7	0.6	3.9	3.9	4.0	4.1	4.9	4.9	4.9	4.9	0	4.9	0	0	0	4.9	4.6
PLAY	4.9	0	4.0	0.7	0.6	4.0	4.0	4.0	4.1	0	4.9	0	4.9	0	0	0	0	0	4.9	0
CUE	4.9	0	4.0	0.7	0.6	4.0	4.0	4.0	4.1	4.9	4.9	0	4.9	0	4.9	0	0	0	4.9	4.6
REV	4.9	0	4.0	0.7	0.6	4.0	4.0	4.0	4.1	0.6	0	0.6	4.9	0	0	4.8	0	4.9	4.9	0
F.ADV.	4.9	0	4.0	0.7	0.7	4.0	4.0	4.0	4.1	0.6	0	0.6	0.6	0	0	4.8	0	0	4.9	0
SLOW(1/4)	4.9	0	4.0	0.7	0.7	4.0	4.0	4.0	4.1	4.9	4.9	4.9	4.9	0	0	4.8	0	0	4.9	0

REF.NO. / MODE	IC6001																			
	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
STOP	0	0	0	0	4.9	0	0	0	4.9	0	0	0	0	0	0	0	4.9	4.9	4.9	4.4
FF	0	0	0	4.9	0	0	0	0	4.9	4.9	0	4.9	0	0	0	0	4.9	4.9	4.9	4.4
REW	0	0	0	4.9	4.9	0	0	0	4.9	4.9	0	4.9	0	0	0	4.9	4.8	4.9	4.9	4.5
REC	4.6	0	0	0	0	0	0	0	4.9	4.8	4.9	0	0	0	0	0	0	4.8	4.8	4.4
PLAY	0	0	0	0	0	0	0	0	4.9	4.9	4.9	0	0	0	0	0	0	4.9	4.9	4.5
CUE	0	0	0	4.9	0	0	0	0	4.9	4.9	0	4.9	0	0	0	0	4.8	4.9	4.9	4.5
REV	0	0	0	0	4.9	0	0	0	4.9	4.9	4.9	0	4.9	0	4.9	0	0	4.9	4.9	4.5
F.ADV.	0	0	0	0	0	0	0	★	0	0	4.9	0	0	4.9	0	0	0	4.9	4.9	4.4
SLOW(1/4)	0	0	0	0	0	0	0	★	0	0	0	0	0	4.9	0	0	0	4.9	4.9	4.4

REF.NO. / MODE	IC6001				IC6003															
	61	62	63	64	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
STOP	4.8	2.3	2.4	4.9	0	0	5.0	5.0	0	2.4	2.2	0	0	0	0	0	5.0	0	5.0	5.0
FF	4.8	2.3	2.4	4.9	0	0	5.0	5.0	0	2.4	2.2	0	0	0	0	0	5.0	0	5.0	5.0
REW	4.8	2.3	2.4	4.9	0	0	5.0	5.0	0	2.4	2.2	0	0	0	0	4.9	5.0	0	5.0	5.0
REC	4.8	2.3	2.4	4.9	0	0	5.0	5.0	0	2.4	2.2	0	0	0	0	0	5.0	0	5.0	5.0
PLAY	4.8	2.3	2.4	4.9	0	0	5.0	5.0	0	2.4	2.2	0	0	0	0	0	5.0	0	5.0	5.0
CUE	4.8	2.3	2.4	4.9	0	0	0	5.0	0	0	2.2	0	5.0	0	0	0	0	0	5.0	5.0
REV	4.8	2.3	2.4	4.9	0	0	0	5.0	0	2.4	2.2	0	0	5.0	0	0	3.9	0	5.0	5.0
F.ADV.	4.8	2.3	2.4	4.9	0	0	0	5.0	0	2.4	2.2	0	0	5.0	0	0	3.9	0	5.0	5.0
SLOW(1/4)	4.8	2.3	2.4	4.9	0	0	5.0	5.0	0	2.4	2.2	0	0	0	0	0	5.0	0	5.0	5.0

REF.NO. / MODE	IC6004										IC6005									
	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	10
STOP	0	0.6	0.9	1.0	0	0	10.1	14.0	0.9	0.6	0	0.6	0	0	0	0	12.1	14.0	0.9	0.6
FF	0	0.6	0.9	0.8	0	0	10.2	14.0	0.9	0.6	0	0.6	0	0	0	0	12.1	14.0	0.9	0.6
REW	0	0.6	0.9	0.7	0	0	10.1	13.9	0.9	0.6	0	0.6	0.9	0.8	0	0	12.1	13.9	0.9	0.6
REC	0	0	0.9	0.7	0	0	10.1	13.9	0.9	0.6	0	0.6	0.9	0.8	0	0	12.1	13.9	0.9	0.6
PLAY	0	0.6	0.9	0.9	0	0	10.2	14.0	0.9	0.6	0	0.6	0.9	0.9	0	0	12.1	14.0	0.9	0.6
CUE	0	0.6	0.9	1.3	0	0	10.2	14.0	0.9	0.6	0	0.6	0.9	1.3	0	0	12.1	14.0	0.9	0.6
REV	0	0.6	0.9	1.3	0	0	10.1	14.0	0.9	0.6	0	0.6	0.9	1.3	0	0	12.1	14.0	0.9	0.6
F.ADV.	0	0.6	0.9	1.2	0	0	10.2	14.0	0.9	0.6	0	0.6	0.9	1.2	0	0	12.1	14.0	0.9	0.6
SLOW(1/4)	0	0.6	0.9	1.2	0	0	10.2	14.0	0.9	0.6	0	0.6	0.9	1.2	0	0	12.2	14.0	0.9	0.6

REF.NO. / MODE	IC3201									IC4701								
	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	
STOP	8.2	0	8.2	0	0	8.2	0	7.4	11.9	5.6	5.7	5.7	0	5.7	5.7	5.6	11.1	
REC	8.2	0	8.2	0	0	8.2	0	7.3	11.9	5.6	5.7	5.7	0	5.7	5.7	5.6	11.1	
PLAY	8.2	0	8.2	0	0	8.3	9.1	7.4	11.9	5.6	5.7	5.7	0	5.7	5.7	5.6	11.1	
CUE	8.2	0	8.2	0	0	8.2	9.1	7.4	11.9									
REV	8.2	0	8.2	0	0	8.2	9.1	7.4	11.9									

REF.NO. / MODE	IC4702								IC4703							
	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	
STOP	5.6	5.7	5.7	0	5.7	5.7	5.6	11.1	7.7	0	7.7	0	7.2	6.9	11.1	
REC	5.6	5.7	5.7	0	5.7	5.7	5.6	11.1	7.7	0	7.6	0	7.1	6.8	11.0	
PLAY	5.6	5.7	5.7	0	5.7	5.7	5.6	11.1	7.7	0	7.7	0	7.2	6.9	11.1	

REF.NO. / MODE	IC4704								IC4705									
	1	2	3	4	5	6	7		1	2	3	4	5	6	7	8	9	
STOP	7.7	0	7.7	0	7.1	6.9	11.1		11.1	5.6	5.6	5.6	0	5.6	5.6	5.6	11.0	
REC	7.6	0	7.6	0	7.1	6.8	11.0		11.0	5.6	5.6	5.5	0	5.5	5.6	5.6	11.0	
PLAY	7.7	0	7.7	0	7.2	6.9	11.1		11.1	5.6	5.6	5.6	0	5.6	5.6	5.6	11.0	

PV-1525

REF.NO. / MODE	IC6001																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
STOP	0	0	4.9	4.9	0	0	0	4.9	0	3.6	4.9	4.9	4.9	4.9	4.9	4.9	2.5	3.9	3.5	2.0
FF	0	0	4.9	4.9	0	0	0	4.9	2.8	3.6	4.9	4.9	4.9	4.8	4.8	4.9	2.5	4.0	3.5	2.0
REW	0	0	4.9	4.9	0	0	0	4.9	2.8	3.6	4.9	4.9	4.9	4.9	4.9	4.9	2.5	4.0	3.5	2.0
REC	0	4.9	0	0	0	0	0	4.9	★	3.6	4.9	4.9	4.9	4.8	4.9	4.9	2.5	3.9	3.4	3.1
PLAY	0	4.9	0	0	0	0	0	4.9	★	3.6	4.9	4.9	4.9	4.8	4.9	4.9	2.5	4.0	3.5	3.1
CUE	0	0	4.9	4.9	0	0	0	4.9	2.8	3.6	4.9	4.9	4.9	4.8	4.9	4.9	2.5	4.0	3.5	2.0
REV	0	0	4.9	4.9	0	0	0	4.9	2.8	3.6	4.9	4.9	4.9	4.8	4.9	4.9	2.5	3.9	3.5	3.1
F.ADV.	0	4.9	0	0	0	0	0	4.9	0	3.6	4.9	4.9	4.9	4.8	4.9	4.9	2.5	4.0	3.5	3.1
SLOW(1/4)	0	4.9	0	0	0	0	0	4.9	0	3.6	4.9	4.9	4.9	4.8	4.9	4.9	2.5	4.0	3.5	3.1

REF.NO. / MODE	IC6001																			
	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
STOP	4.9	0	4.0	0.7	0.6	3.9	3.9	4.0	4.1	4.9	4.9	4.9	4.9	0	4.9	0	0	0	4.9	4.6
FF	4.9	0	4.0	0.7	0.7	4.0	4.0	4.0	4.1	4.9	4.9	4.2	4.9	0	4.9	0	0	0	4.9	4.6
REW	4.9	0	4.0	0.7	0.6	4.0	4.0	4.0	4.1	4.9	4.9	4.9	4.9	0	4.9	0	0	0	4.9	4.6
REC	4.9	0	4.0	0.7	0.6	3.9	3.9	4.0	4.1	4.9	4.9	4.9	4.9	0	4.9	0	4.7	0	4.9	4.6
PLAY	4.9	0	4.0	0.7	0.6	4.0	4.0	4.0	4.1	0	4.9	0	4.9	0	0	0	0	0	4.9	0
CUE	4.9	0	4.0	0.7	0.6	4.0	4.0	4.0	4.1	4.9	4.9	0	4.9	0	4.9	0	0	0	4.9	4.6
REV	4.9	0	4.0	0.7	0.6	4.0	4.0	4.0	4.1	0.6	0	0.6	4.9	0	0	4.8	0	4.9	4.9	0
F.ADV.	4.9	0	4.0	0.7	0.7	4.0	4.0	4.0	4.1	0.6	0	0.6	0.6	0	0	4.8	0	0	4.9	0
SLOW(1/4)	4.9	0	4.0	0.7	0.7	4.0	4.0	4.0	4.1	4.9	4.9	4.9	4.9	0	0	4.8	0	0	4.9	0

REF.NO. / MODE	IC6001																			
	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
STOP	0	0	0	0	4.9	0	0	0	4.9	0	0	0	0	0	0	0	4.9	4.9	4.9	4.4
FF	0	0	0	4.9	0	0	0	0	4.9	4.9	0	4.9	0	0	0	0	4.9	4.9	4.9	4.4
REW	0	0	0	4.9	4.9	0	0	0	4.9	4.9	0	4.9	0	0	0	4.9	4.8	4.9	4.9	4.5
REC	4.6	0	0	0	0	0	0	0	4.9	4.8	4.9	0	0	0	0	0	0	4.8	4.8	4.4
PLAY	0	0	0	0	0	0	0	0	4.9	4.9	4.9	0	0	0	0	0	0	4.9	4.9	4.5
CUE	0	0	0	4.9	0	0	0	0	4.9	4.9	0	4.9	0	0	0	0	4.8	4.9	4.9	4.5
REV	0	0	0	0	4.9	0	0	0	4.9	4.9	4.9	0	4.9	0	4.9	0	0	4.9	4.9	4.5
F.ADV.	0	0	0	0	0	0	0	★	0	0	4.9	0	0	4.9	0	0	0	4.9	4.9	4.4
SLOW(1/4)	0	0	0	0	0	0	0	★	0	0	0	0	0	4.9	0	0	0	4.9	4.9	4.4

REF.NO. / MODE	IC6001				IC6002															
	61	62	63	64	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
STOP	4.8	2.3	2.4	4.9		0	4.9	3.2	0	1.1	4.9	0	5.0							
FF	4.8	2.3	2.4	4.9		0	4.9	3.2	0	1.1	4.9	0	5.0							
REW	4.8	2.3	2.4	4.9		0	4.9	3.2	0	1.1	4.9	0	5.0							
REC	4.8	2.3	2.4	4.9		0	4.9	3.2	0	1.1	4.9	0	4.9							
PLAY	4.8	2.3	2.4	4.9		0	4.9	3.2	0	1.1	4.9	0	4.9							
CUE	4.8	2.3	2.4	4.9		0	4.9	3.2	0	1.1	4.9	0	4.9							
REV	4.8	2.3	2.4	4.9		0	4.9	3.2	0	1.1	4.9	0	4.9							
F.ADV.	4.8	2.3	2.4	4.9		0	4.9	3.2	0	1.1	4.9	0	4.9							
SLOW(1/4)	4.8	2.3	2.4	4.9		0	4.9	3.2	0	1.1	4.9	0	4.9							

REF.NO. / MODE	IC6004										IC6005									
	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	10
STOP	0	0.6	0.9	1.0	0	0	10.1	14.0	0.9	0.6	0	0.6	0	0	0	0	12.1	14.0	0.9	0.6
FF	0	0.6	0.9	0.8	0	0	10.2	14.0	0.9	0.6	0	0.6	0	0	0	0	12.1	14.0	0.9	0.6
REW	0	0.6	0.9	0.7	0	0	10.1	13.9	0.9	0.6	0	0.6	0.9	0.8	0	0	12.1	13.9	0.9	0.6
REC	0	0	0.9	0.7	0	0	10.1	13.9	0.9	0.6	0	0.6	0.9	0.8	0	0	12.1	13.9	0.9	0.6
PLAY	0	0.6	0.9	0.9	0	0	10.2	14.0	0.9	0.6	0	0.6	0.9	0.9	0	0	12.1	14.0	0.9	0.6
CUE	0	0.6	0.9	1.3	0	0	10.2	14.0	0.9	0.6	0	0.6	0.9	1.3	0	0	12.1	14.0	0.9	0.6
REV	0	0.6	0.9	1.3	0	0	10.1	14.0	0.9	0.6	0	0.6	0.9	1.3	0	0	12.1	14.0	0.9	0.6
F.ADV.	0	0.6	0.9	1.2	0	0	10.2	14.0	0.9	0.6	0	0.6	0.9	1.2	0	0	12.1	14.0	0.9	0.6
SLOW(1/4)	0	0.6	0.9	1.2	0	0	10.2	14.0	0.9	0.6	0	0.6	0.9	1.2	0	0	12.2	14.0	0.9	0.6

VOLTAGE MEASUREMENT:
1. CUE, REVIEW, FRAME ADVANCE.
   COLOR BAR SIGNAL IN SLP MODE.
2. OTHERS
   COLOR BAR SIGNAL IN SP MODE.

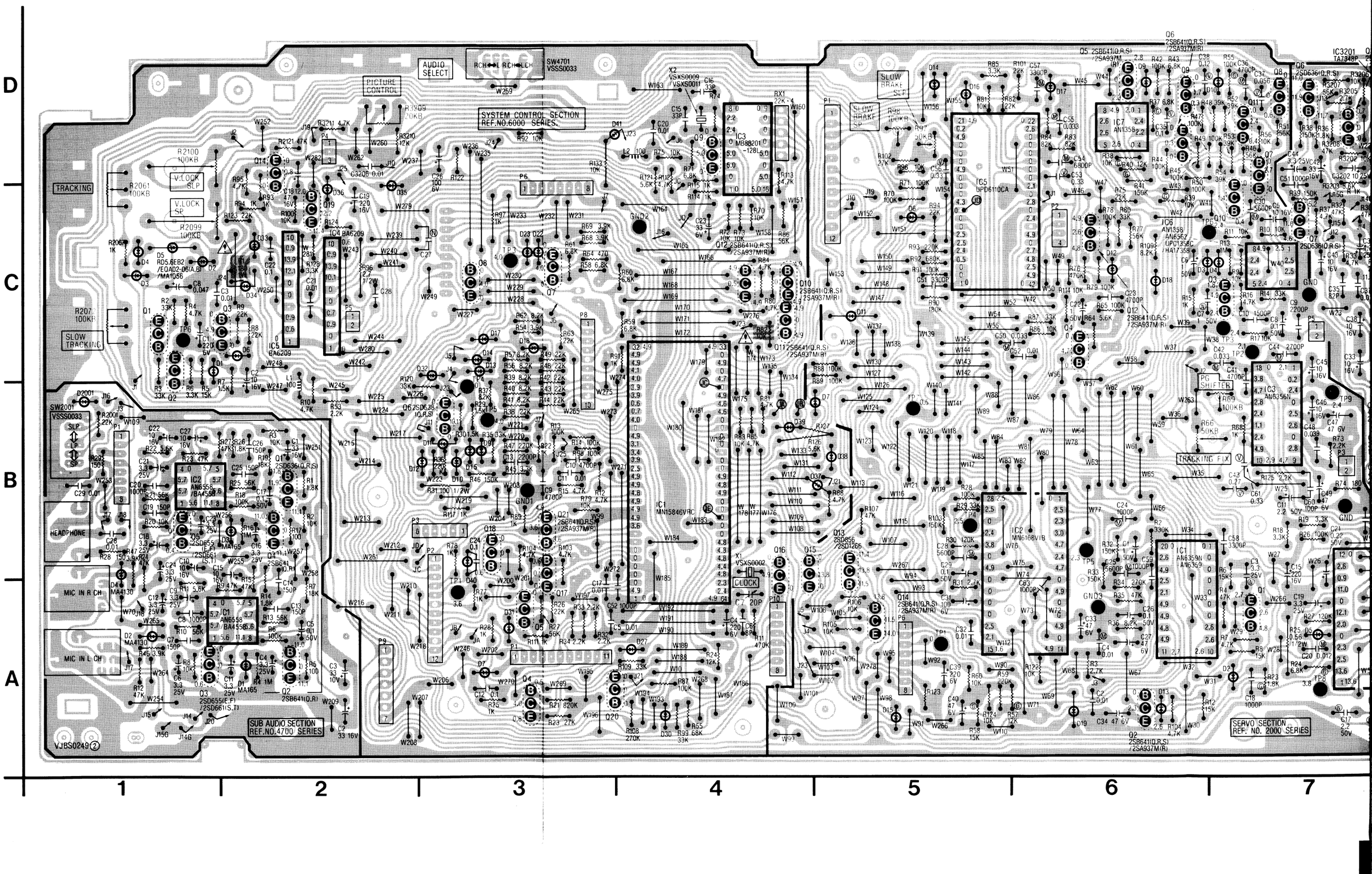
★ : UNMEASURABLE OR UNNECESSARY TO MEASURE.

MAIN C.B.A. VEPS0249B1 (PV-1530)

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.

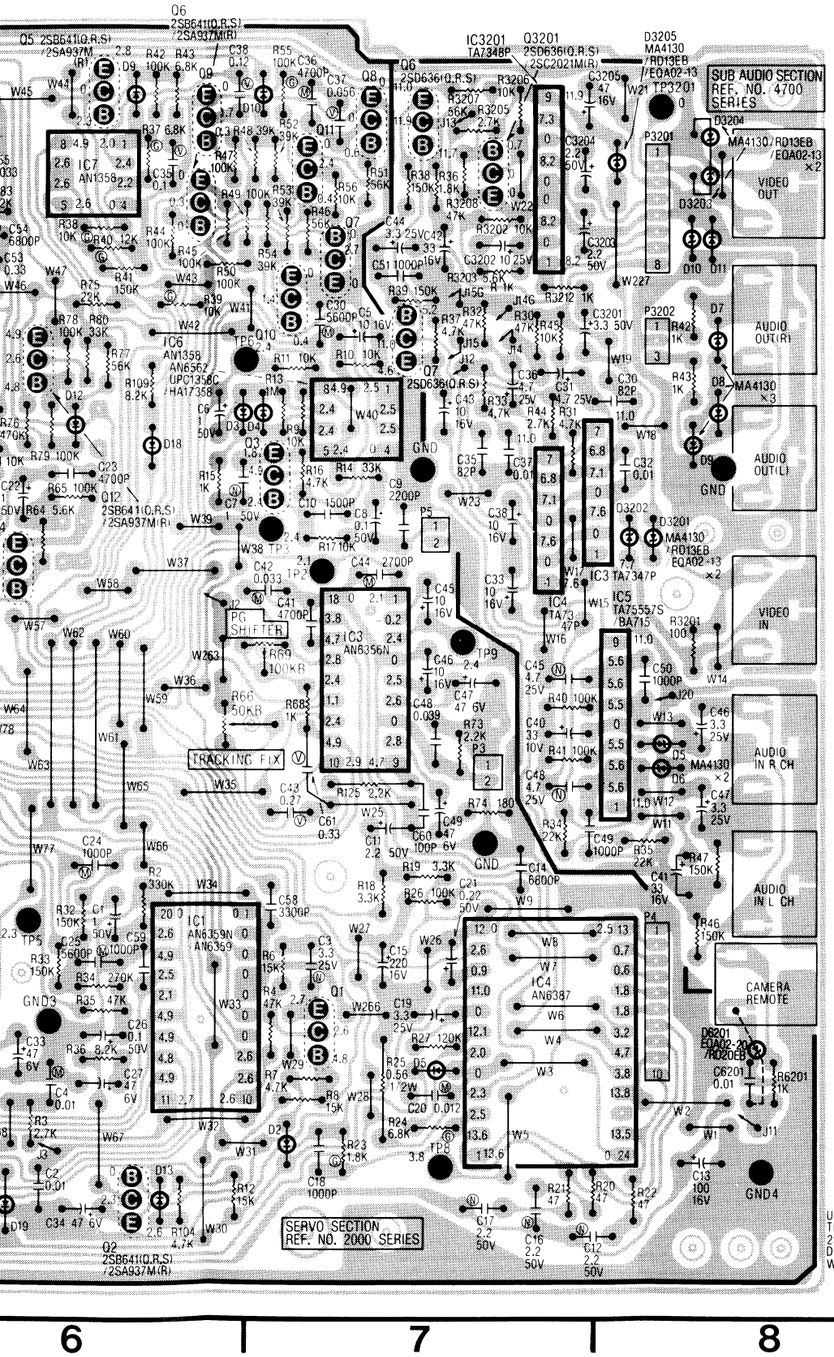
VOLTAGE MEASUREMENT: COLOR BAR SIGNAL IN SP REC MODE.

SPECIAL N
ALL INTEG
ELECTROST
HANDLING
(ES) DEVIC



MENT: COLOR BAR SIGNAL
IN SP REC MODE.

SPECIAL NOTE:
ALL INTEGRATED CIRCUITS AND MANY OTHER SEMICONDUCTOR DEVICES ARE ELECTROSTATICALLY SENSITIVE AND THEREFORE REQUIRE THE SPECIAL HANDLING TECHNIQUES DESCRIBED UNDER THE "ELECTROSTATICALLY SENSITIVE (ES) DEVICES" SECTION OF THIS SERVICE MANUAL.



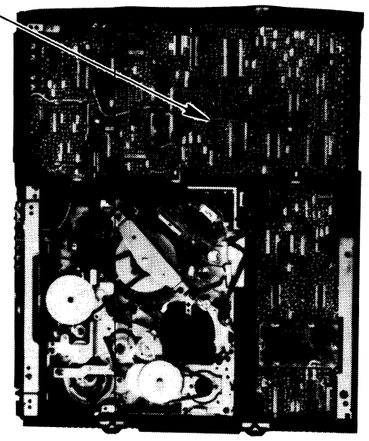
UNLESS OTHERWISE SPECIFIED:
TRANSISTORS ARE
2SD636(Q,R,S)/2SC2021M(R,S),
DIODES ARE MA165/1SS119 AND
WATTAGE OF RESISTORS ARE 1/4W.

SYSTEM CONTROL SECTION	
Q1	C-1
Q2	B-1
Q3	C-1
Q4	A-3
Q5	A-3
Q6	B-3
Q7	C-3
Q8	C-3
Q10	C-4
Q11	C-4
Q12	C-4
Q14	D-2
Q16	B-4
Q17	B-3
Q18	B-3
Q20	A-3
Q21	B-3

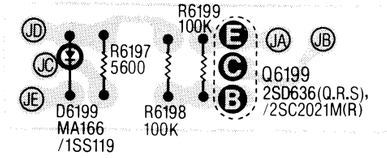
SERVO SECTION	
Q1	A-7
Q2	A-6
Q3	C-7
Q4	C-6
Q5	D-6
Q6	D-6
Q7	D-7
Q8	D-7
Q9	D-6
Q10	C-7
Q11	D-7
Q12	C-6
Q13	B-5
Q14	A-5
Q15	B-4

SUB AUDIO SECTION	
Q1	B-2
Q2	A-2
Q3	A-1
Q4	B-2
Q5	B-1
Q6	D-7
Q7	C-7
Q3201	D-7

MAIN C.B.A.



SUB SYSTEM CONTROL (II) C.B.A.

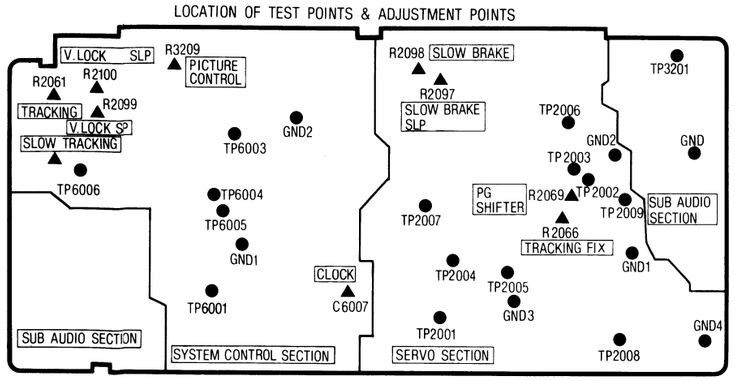


VJBS00257 (20)

SUB SYSTEM
CONTROL(II) C.B.A. MAIN C.B.A.

JA —— JA
JB —— JB
JC —— JC
JD —— JD
JE —— JE

LOCATION OF TEST POINTS & ADJUSTMENT POINTS



P2001

1	EXCEPT PB Ⓗ
2	EE/VV EE Ⓗ
3	LP/SLP Ⓗ
4	SLP Ⓗ
5	CUE/REVIEW/SS Ⓗ
6	DELAY REC Ⓗ
7	PB Ⓗ
8	3.58MHz
9	HEAD SW
10	PICTURE CTL
11	VSS
12	ROTARY SW

P2002

1	V PULSE
2	V LOCK
3	ENV DET
4	HEAD SW

P2003

1	CONTROL HEAD
2	GND

P2004

1	GND
2	VH+
3	$\overline{HEM}$
4	HEM
5	$\overline{HES}$
6	HES
7	MAIN COIL 3
8	MAIN COIL 2
9	VM
10	MAIN COIL 1

P2005

1	CAP Ⓜ FG
2	GND

P2006

1	ERROR
2	FORWARDⓁ/STOPⓂ/REVERSE
3	+5V
4	REF VOLTAGE
5	+5V
6	VM
7	GND
8	TL

P3201

1	GND
2	VIDEO
3	GND
4	VIDEO
5	GND
6	VIDEO
7	AUDIO
8	GND

P3202

1	AUDIO HEAD R CH
2	GND
3	AUDIO HEAD L CH

P4701

1	AUDIO HEAD R CH Ⓗ
2	AUDIO HEAD L CH Ⓗ
3	HEAD PHONE L CH
4	HEAD PHONE R CH
5	GND
6	AUDIO HEAD L CH
7	GND
8.	AUDIO HEAD R CH

P6001

1	DEW SENSOR
2	SENSOR LED PULSE
3	+5V
4	REEL SENSOR
5	POSITION 1
6	POSITION 3
7	POSITION 2
8	
9	SEFETY TAB SW
10	GND
11	UNSWITCH +12V

P6002

1	COUNTER RESET
2	TIMER +5V
3	TV/VCR SW
4	SERIAL DATA
5	SERIAL CLOCK
6	349KHz
7	TIMER SET
8	TIMER REC
9	SAFETY TAB SW
10	IC7501 RESET
11	AUDIO INPUT SELECT
12	VIDEO INPUT SELECT

P6003

1	DATA 9
2	DATA 8
3	DATA 10
4	DOLBY ON Ⓗ
5	AUDIO INPUT SELECT
6	VIDEO INPUT SELECT

P6005

1	LOADINGⓂUNLOADINGⒽ
2	LOADINGⓂLOADINGⒽ

P6006

1	CASSETTEⓂUNLOADINGⒽ
2	CASSETTEⓂLOADINGⒽ
3	SUPPLY PHOTO TR
4	GND
5	CASSETTE IN SW
6	CASSETTE DOWN SW
7	TAKEUP PHOTO TR

P6008

1	GND
2	TV/VCR SW
3	IR POWER SW
4	SCAN 1
5	SCAN 2
6	DATA IN 11
7	DATA IN 10
8	DATA IN 9
9	DATA IN 8

P6009

1	UNSWITCH +12V
2	GND
3	+5V
4	+14V
5	+12V
6	POWER ON Ⓛ
7	GND

P6010

1	AUDIO MUTE Ⓗ
2	AUDIO DELAY REC Ⓗ
3	+12V
4	SLP Ⓗ
5	LP/SLP Ⓗ
6	AUDIO EE Ⓗ
7	DOLBY ON Ⓗ

P2001

1	EXCEPT PB Ⓗ
2	EE/VV EE Ⓗ
3	LP/SLP Ⓗ
4	SLP Ⓗ
5	CUE/REVIEW/SS Ⓗ
6	DELAY REC Ⓗ
7	PB Ⓗ
8	3.58MHz
9	HEAD SW
10	PICTURE CTL
11	VSS
12	ROTA SW

P2002

1	V PULSE
2	V LOCK
3	ENV DET
4	HEAD SW

P2003

1	CONTROL HEAD
2	GND

P2004

1	GND
2	VH +
3	HEM
4	HEM
5	HES
6	HES
7	MAIN COIL 3
8	MAIN COIL 2
9	VM
10	MAIN COIL 1

P2005

1	CAP Ⓜ FG
2	GND

P2006

1	ERROR
2	FORWARD Ⓛ/STOP Ⓜ
3	+5V/REVERS Ⓡ
4	REF VOLTAGE
5	+5V
6	VM
7	GND
8	TL

P6001

1	DEW SENSOR
2	SENSOR LED PULSE
3	+5V
4	REEL SENSOR
5	POSITION 1
6	POSITION 3
7	POSITION 2
8	
9	SEFETY TAB SW
10	GND
11	UNSWITCH +12V

P6002

1	COUNTER RESET
2	TIMER +5V
3	TV/VCR SW
4	SERIAL DATA
5	SERIAL CLOCK
6	349KHz
7	TIMER SET
8	TIMER REC
9	SAFETY TAB SW
10	IC7501 RESET
11	AUDIO INPUT SELECT
12	VIDEO INPUT SELECT

P6003

1	
2	AUDIO DUB
3	MEMORY COUNTER
4	DOLBY Ⓗ
5	IR CH DOWN
6	IR CH UP

P6005

1	LOADING Ⓜ UNLOADING Ⓗ
2	LOADING Ⓜ LOADING Ⓗ

P6006

1	CASSETTE Ⓜ UNLOADING Ⓗ
2	CASSETTE Ⓜ LOADING Ⓗ
3	SUPPLY PHOTO TR
4	GND
5	CASSETTE IN SW
6	CASSETTE DOWN SW
7	TAKEUP PHOTO TR

P6008

1	GND
2	TV/VCR SW
3	POWER SW
4	SCAN 1
5	SCAN 2
6	DATA IN 11
7	DATA IN 10
8	DATA IN 9
9	DATA IN 8
10	

P6009

1	UNSWITCH +12V
2	GND
3	+5V
4	+14V
5	+12V
6	POWER ON Ⓛ
7	GND

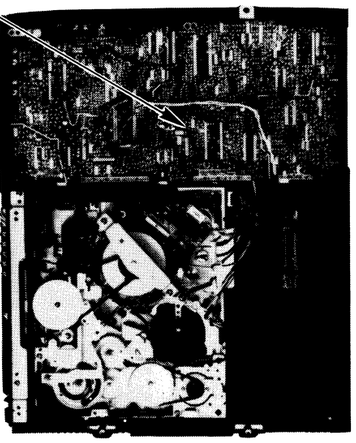
P3201

1	VIDEO
2	GND
3	VIDEO
4	GND
5	VIDEO
6	GND
7	AUDIO
8	AUDIO

P4001

1	AUDIO HEAD R CH Ⓗ
2	AUDIO HEAD L CH Ⓗ
3	GND
4	AUDIO ERASE HEAD

SERVO/AUDIO/SYSTEM CONTROL C.B.A.

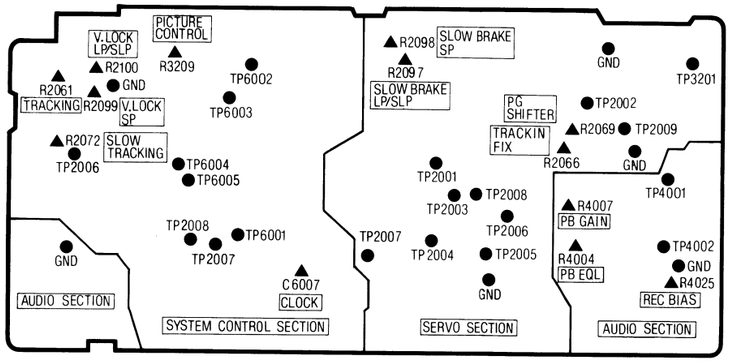


SERVO SECTON	
Q1	B-6
Q2	C-6
Q3	C-6
Q4	C-5
Q5	D-6
Q6	D-6
Q7	C-7
Q8	D-7
Q9	D-6
Q10	C-7
Q11	D-7
Q12	D-5
Q13	B-5
Q14	A-5
Q15	B-5

SYSTEM CONTROL SECTION	
Q3	B-1
Q4	A-3
Q5	A-3
Q6	B-2
Q7	C-3
Q10	C-4
Q11	C-4
Q12	C-4
Q14	C-2
Q20	A-3
Q21	B-3

AUDIO SECTION	
Q1	A-7
Q2	A-7
Q3	A-7
Q4	A-7
Q6	B-7
Q7	A-7
Q4701	A-1
Q4702	A-2
Q3201	C-7
Q3202	C-7

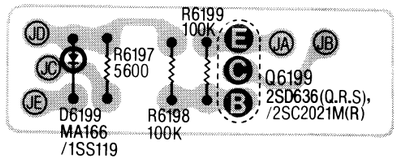
LOCATION OF TEST POINTS & ADJUSTMENT POINTS



SUB SYSTEM CONTROL (II) C.B.A.

SUB SYSTEM → MAIN C.B.A
CONTROL (II)
C.B.A

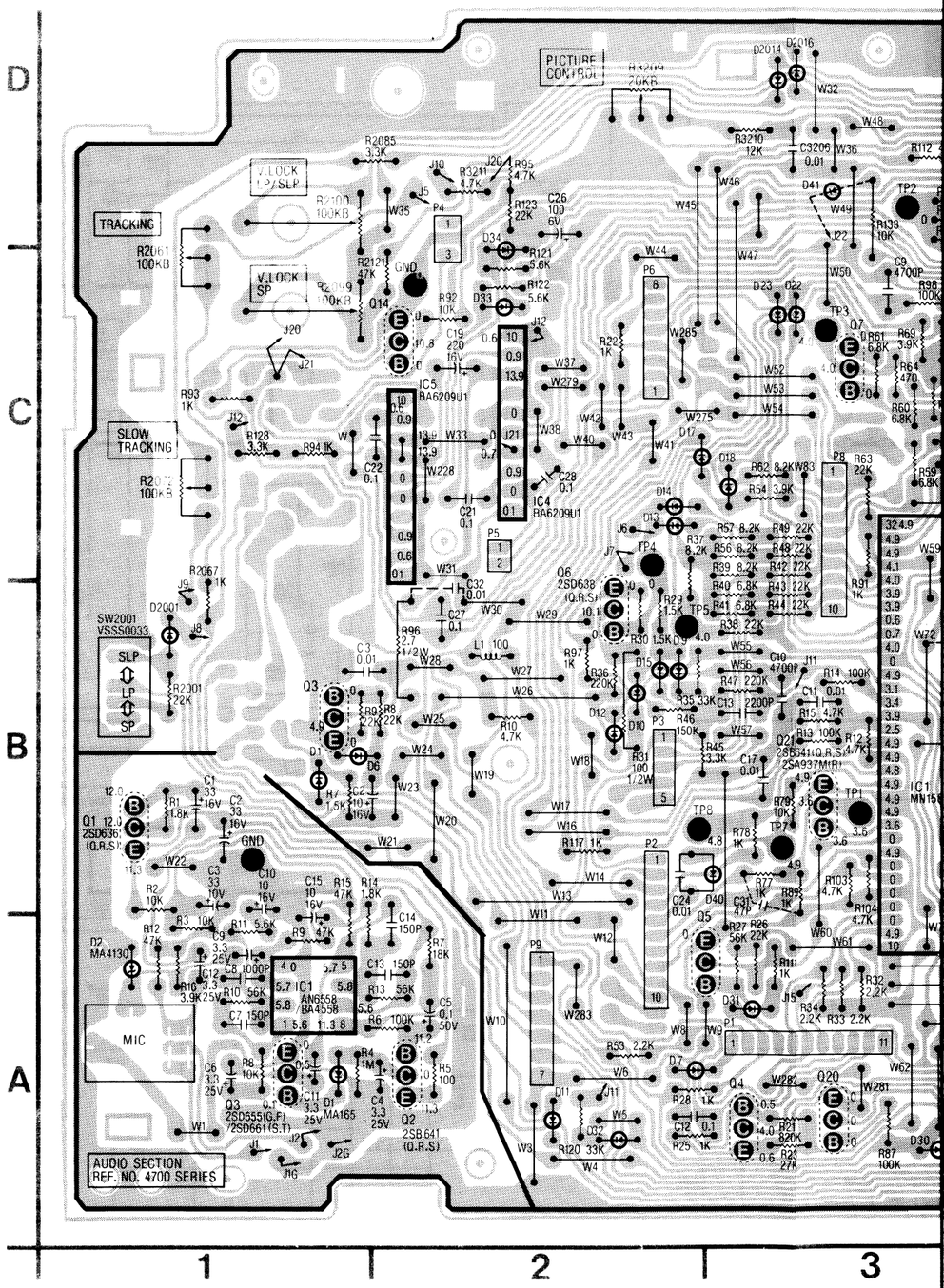
JA ——— JA
JB ——— JB
JC ——— JC
JD ——— JD
JE ——— JE



VJBS00257 (20)

SPECIAL NOTE:
ALL INTEGRATED CIRCUITS AND MANY OTHER SEMICONDUCTOR DEVICES ARE ELECTROSTATICALLY SENSITIVE AND THEREFORE REQUIRE THE SPECIAL HANDLING TECHNIQUES DESCRIBED UNDER THE "ELECTROSTATICALLY SENSITIVE (ES) DEVICES" SECTION OF THIS SERVICE MANUAL.

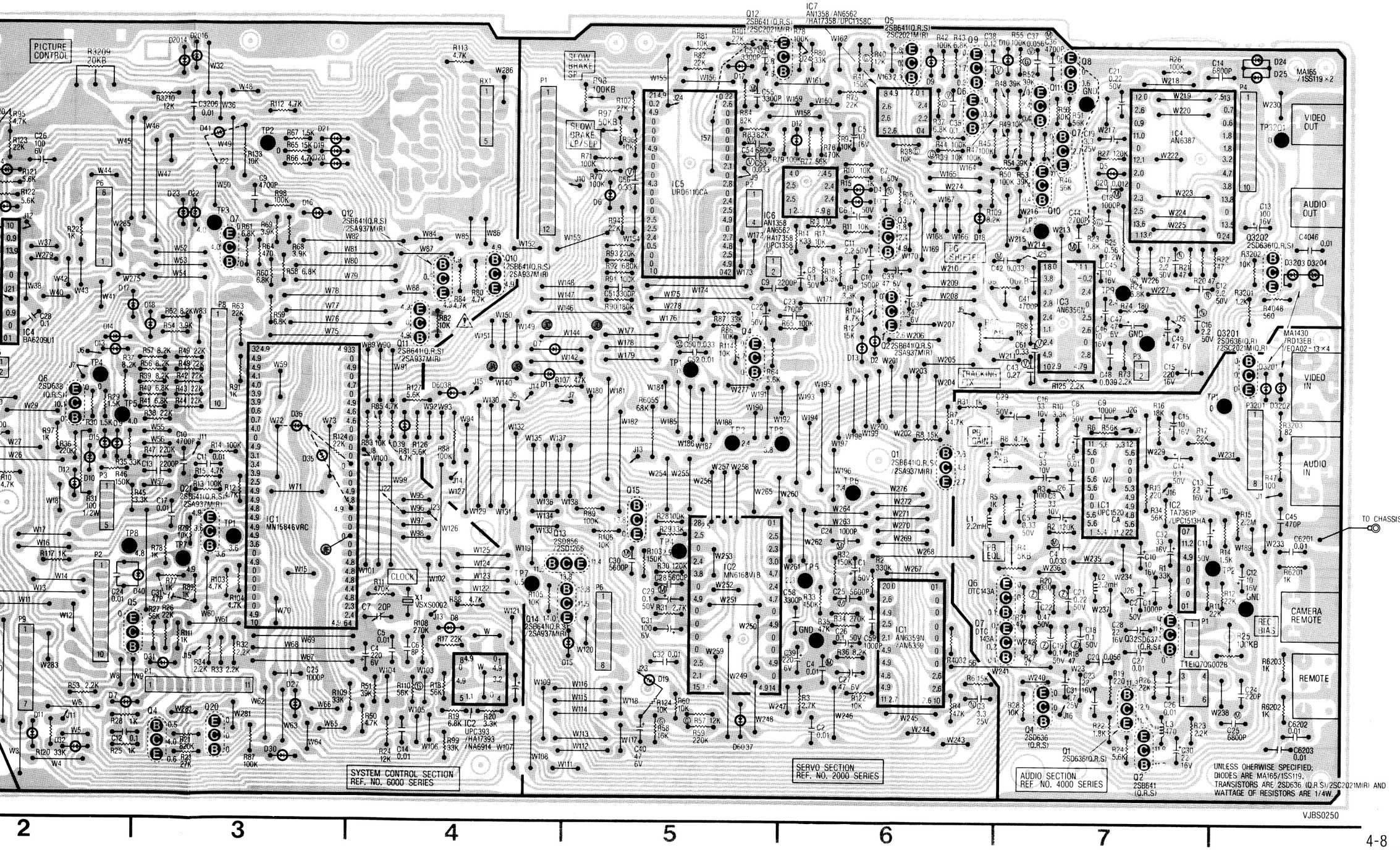
MAIN C.B.A. VEPS0250H1 (PV-1525)



(PV-1525)

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.

VOLTAGE MEASUREMENT: COLOR BAR SIGNAL IN SP REC MODE



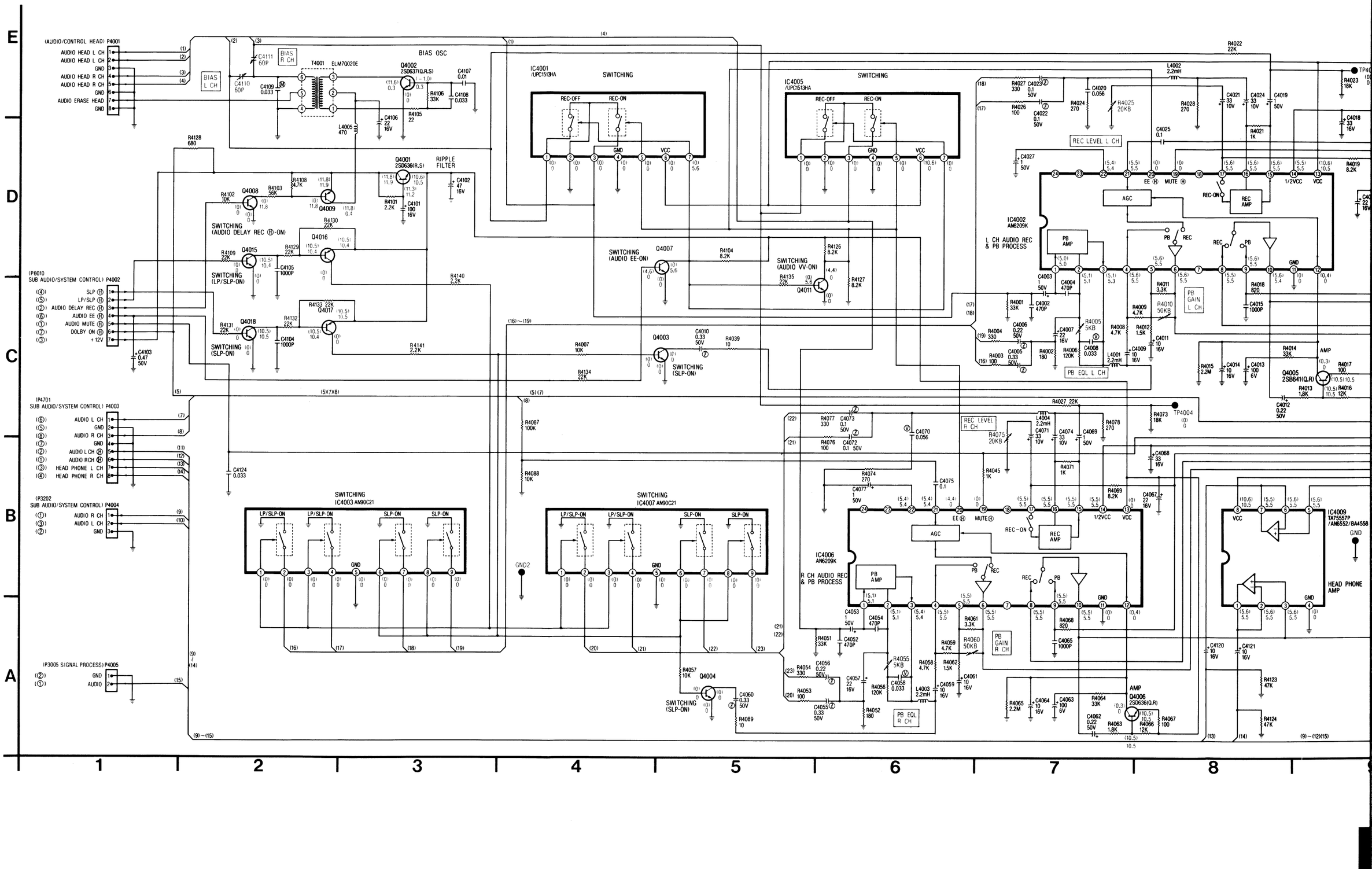
2 3 4 5 6 7

4-8
AUDIO SCHEMATIC DIAGRAM
PV-1530

AUDIO SCHEMATIC DIAGRAM (PV-1530)

VOLTAGE MEASUREMENT:
COLOR BAR SIGNAL IN SP REC MODE WITH BRACKET.
COLOR BAR SIGNAL IN SP PLAY MODE WITHOUT BRACKET.

CALLOUTS NEXT TO WIRING PLUGS
CONNECTIONS TO OTHER SCHEMAT



CALLOUTS NEXT TO WIRING PLUGS INDICATE CONNECTIONS TO OTHER SCHEMATIC DIAGRAM.

SPECIAL NOTE:
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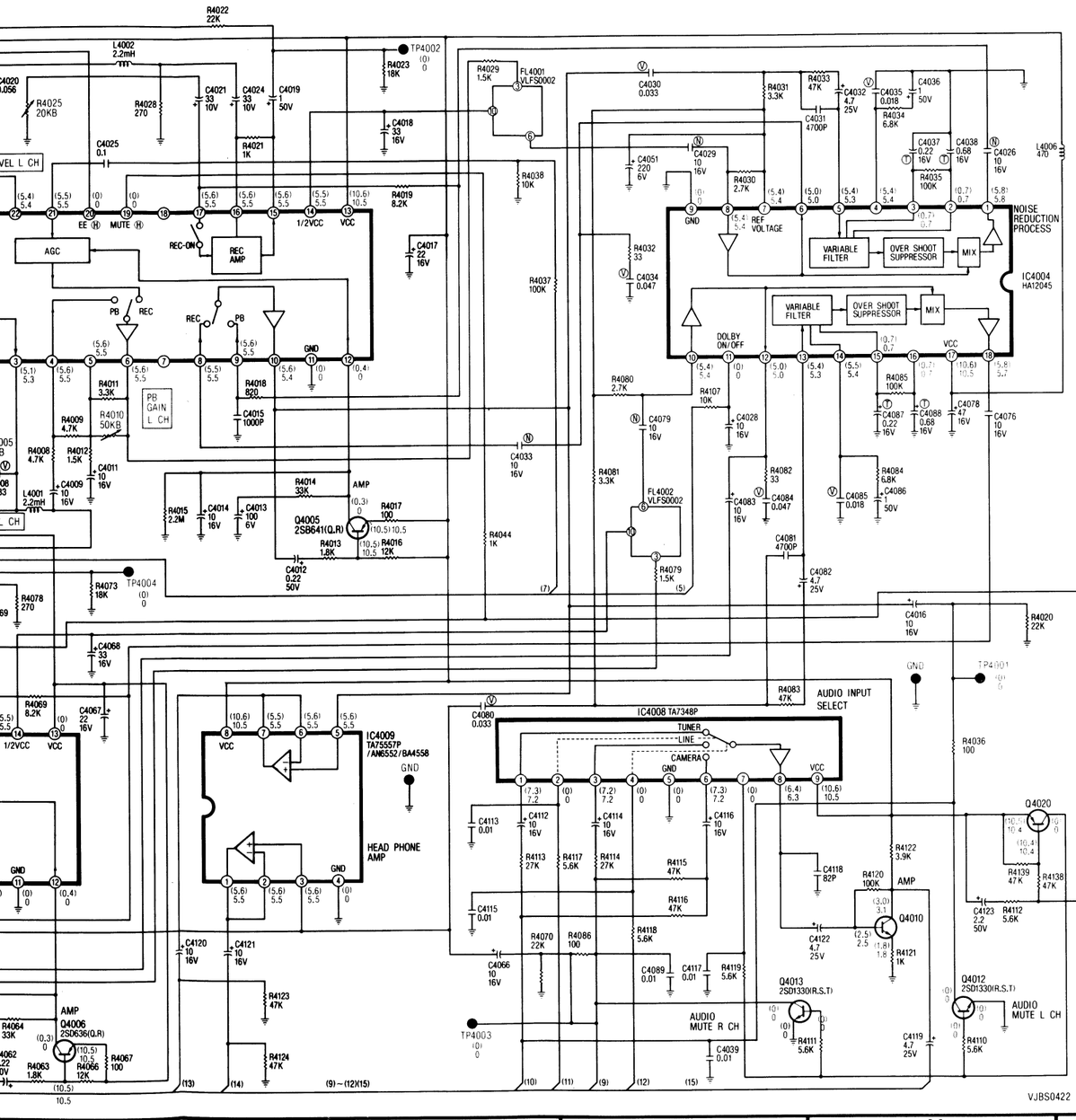
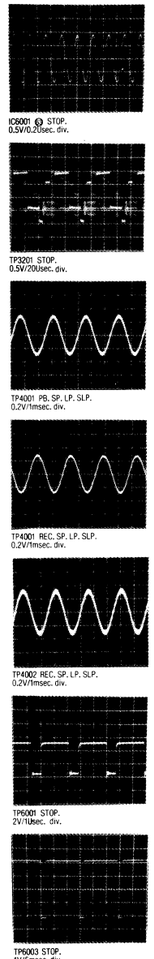
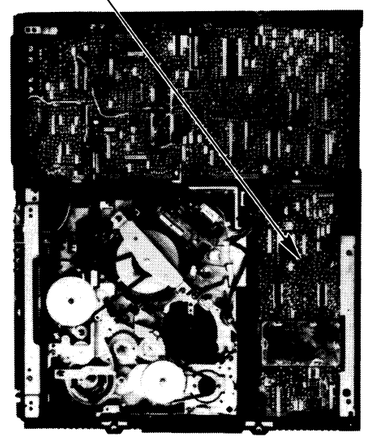


AUDIO SCHEMATIC DIAGRAM	
Q4001	3-D
Q4002	3-E
Q4003	5-C
Q4004	5-A
Q4005	9-C
Q4006	7-A
Q4007	5-D
Q4008	2-D
Q4009	2-D
Q4010	10-A
Q4011	6-C
Q4012	11-A
Q4013	10-A
Q4015	2-D
Q4016	2-D
Q4017	2-C
Q4018	2-C
Q4019	12-A
Q4020	11-B



AUDIO C.B.A.



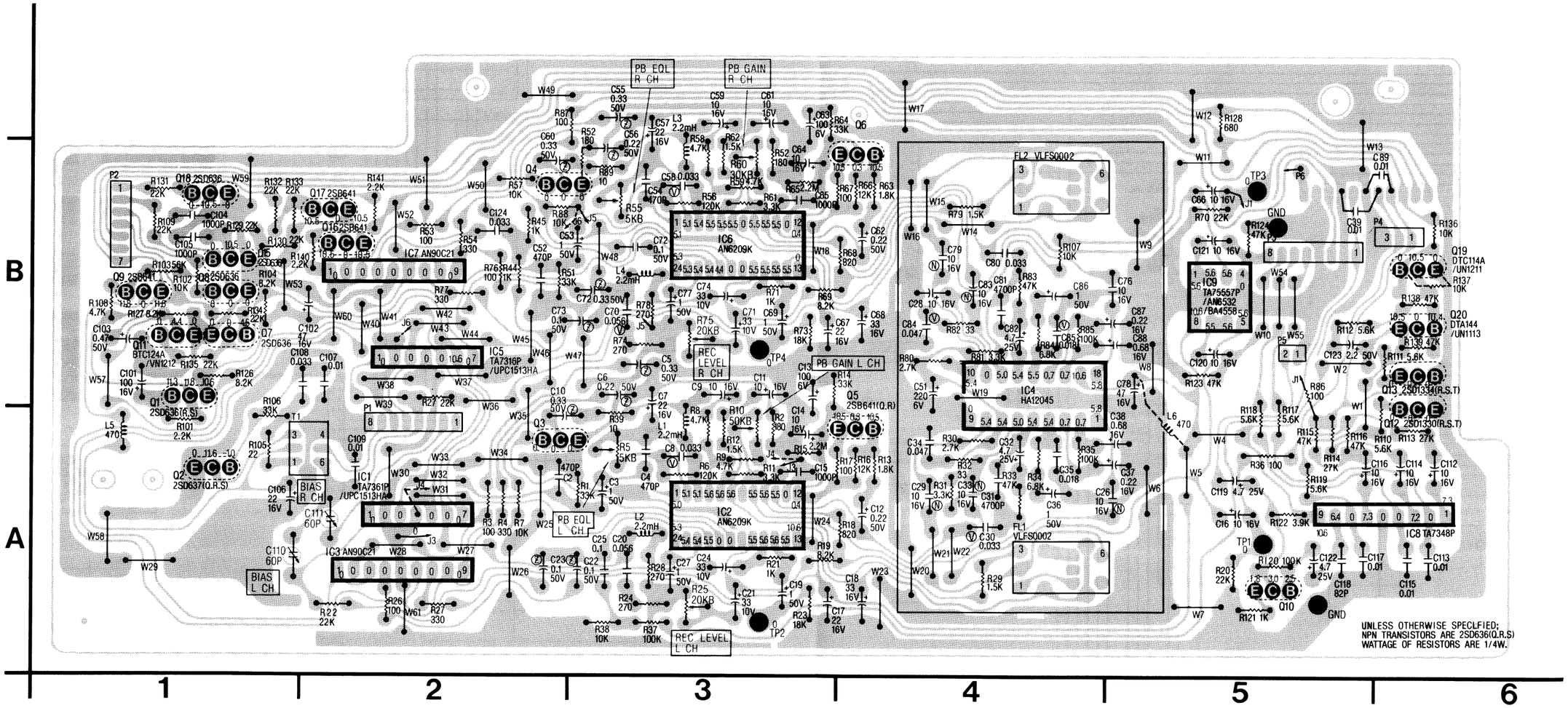
NOTE: REF. NO. ON C.B.A. IS PRINTED AS FOLLOWS.
EXAMPLE: C.B.A.···R2, REF. NO. 4000 SERIES
SCHEMATIC DIAGRAM···R4002
(R4002 IS ABBREVIATED TO R2)

UNLESS OTHERWISE SPECIFIED:
PNP TRANSISTORS ARE 2SB641(R,S),
NPN TRANSISTORS ARE 2SD636(Q,R,S) AND
WATTAGE OF RESISTORS ARE 1/4W.

AUDIO C.B.A. VEPS0422A1 (PV-1530)

VOLTAGE MEASUREMENT: COLOR BAR SIGNAL IN SP REC MODE.

SPECIAL NOTE:
ALL INTEGRATED CIRCUITS AND MANY OTHER SEMICONDUCTOR DEVICES ARE ELECTROSTATICALLY SENSITIVE AND THEREFORE REQUIRE THE SPECIAL HANDLING TECHNIQUES DESCRIBED UNDER THE "ELECTROSTATICALLY SENSITIVE (ES) DEVICES" SECTION OF THIS SERVICE MANUAL.



P4001

1	AUDIO HEAD L CH
2	AUDIO HEAD L CH
3	GND
4	AUDIO HEAD R CH
5	AUDIO HEAD R CH
6	GND
7	AUDIO ERASE HEAD
8	GND

P4002

1	SLP Ⓗ
2	LP/SLP Ⓗ
3	AUDIO DELAY REC Ⓗ
4	AUDIO EE Ⓗ
5	AUDIO MUTE Ⓗ
6	DOLBY ON Ⓗ
7	+12V

P4003

1	AUDIO L CH
2	GND
3	AUDIO R CH
4	GND
5	AUDIO L CH Ⓗ
6	AUDIO R CH Ⓗ
7	HEAD PHONE L CH
8	HEAD PHONE R CH

P4004

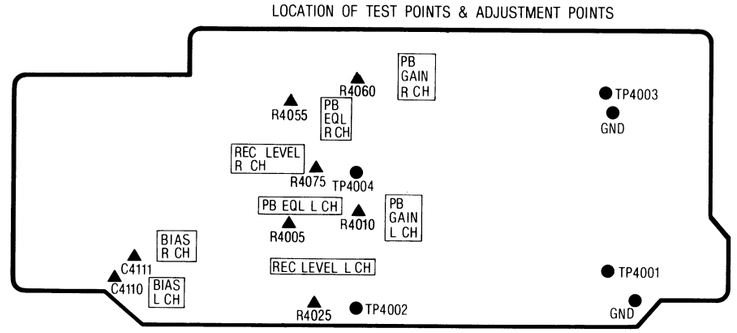
1	AUDIO R CH
2	AUDIO L CH
3	GND

P4005

1	GND
2	AUDIO

VOLTAGE MEASUREMENT:
1. CUE, REVIEW,
COLOR BAR SIGNAL IN SLP MODE.
2. OTHERS
COLOR BAR SIGNAL IN SP MODE.

LOCATION OF TEST POINTS & ADJUSTMENT POINTS



REF.NO.	Q4	
MODE	E	
STOP	10.5	1
REC	10.6	1
PLAY	10.5	1
CUE	10.4	1
REV	10.5	1

REF.NO.	Q4	
MODE	E	
STOP	0	
REC	0	
PLAY	0	
CUE	0	
REV	0	

REF.NO.	Q4	
MODE	E	
STOP	0	
REC	0	
PLAY	0	
CUE	0	
REV	0	

REF.NO.	Q4	
MODE	E	
STOP	10.5	10
REC	10.5	10
PLAY	10.4	10
CUE	10.4	10
REV	10.4	10

REF.NO.		
MODE	1	2
STOP	0	0
REC	0	0
PLAY	0	0

REF.NO.		
MODE	1	2
STOP	5.0	5.1
REC	5.0	5.1
PLAY	5.0	5.1

REF.NO.		
MODE	21	22
STOP	5.5	5.4
REC	5.5	5.4
PLAY	5.5	5.4

REF.NO.		
MODE	1	2
STOP	5.8	0.7
REC	5.8	0.7
PLAY	5.8	0.7

REF.NO.		
MODE	1	2
STOP	0	0
REC	0	0
PLAY	0	0

REF.NO.		
MODE	1	2
STOP	5.1	5.2
REC	5.1	5.1
PLAY	5.1	5.1

REF.NO.		
MODE	21	22
STOP	5.4	5.4
REC	5.4	5.4
PLAY	5.4	5.4

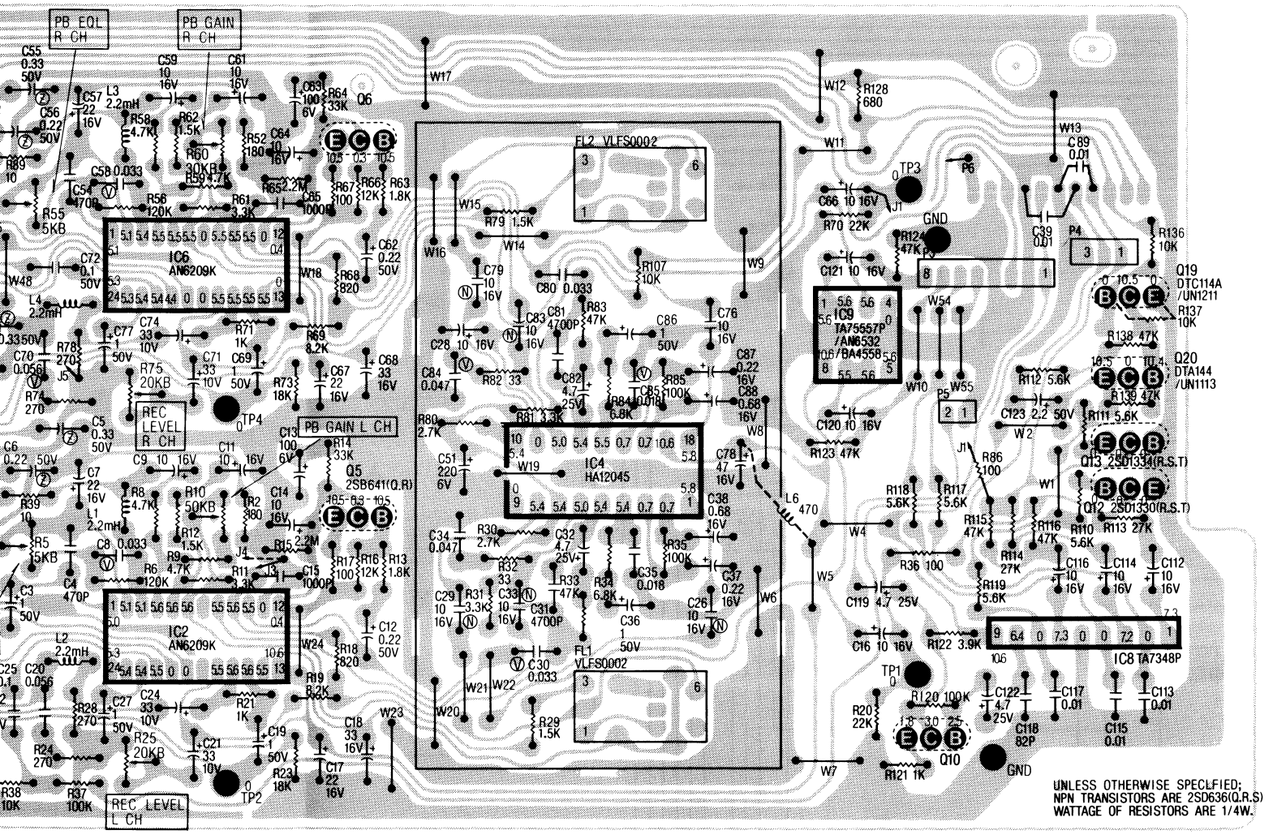
REF.NO.		
MODE	1	2
STOP	7.3	0
REC	7.3	0
PLAY	7.2	0

REF.NO.	TP4001	TP400
MODE		
STOP	0	0
REC	0	0
PLAY	0	0

VOLTAGE MEASU
1. CUE, REVIEW
COLOR BAR
2. OTHERS
COLOR BAR

VOLTAGE MEASUREMENT: COLOR BAR SIGNAL
IN SP REC MODE.

SPECIAL NOTE:
ALL INTEGRATED CIRCUITS AND MANY OTHER SEMICONDUCTOR DEVICES ARE ELECTROSTATICALLY SENSITIVE AND THEREFORE REQUIRE THE SPECIAL HANDLING TECHNIQUES DESCRIBED UNDER THE "ELECTROSTATICALLY SENSITIVE (ES) DEVICES" SECTION OF THIS SERVICE MANUAL.



3 4 5 6

P4004

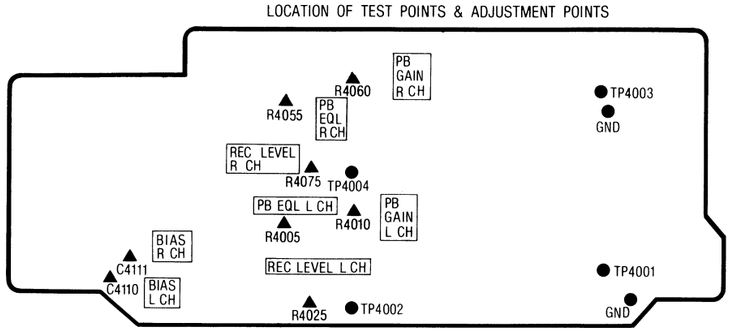
1	AUDIO R CH
2	AUDIO L CH
3	GND

P4005

1	GND
2	AUDIO

TAGE MEASUREMENT:
CUE, REVIEW,
COLOR BAR SIGNAL IN SLP MODE.
OTHERS
COLOR BAR SIGNAL IN SP MODE.

LOCATION OF TEST POINTS & ADJUSTMENT POINTS



REF.NO.	Q4001			Q4002			Q4003			Q4004			Q4005			Q4006		
MODE	E	B	C	E	B	C	E	B	C	E	B	C	E	B	C	E	B	C
STOP	10.5	11.3		0	0	0.2	0	0	0	0	0	0	10.5	10.5	0.3	10.5	10.6	0.3
REC	10.6	11.3	11.8	0	−1.0	11.6	0	0	0	0	0	0	10.5	10.5	0.3	10.5	10.5	0.3
PLAY	10.5	11.2	11.8	0	0.3	0.3	0	0	0	0	0	0	10.5	10.5	0	10.5	10.5	0
CUE	10.4	11.2	11.9	0	0.3	0.3	0	0	0	0	0	0	10.4	10.4	0	10.4	10.4	0
REV	10.5	11.2	11.9	0	0.4	0.4	0	0	0	0	0	0	0	10.4	0	10.4	10.5	0
REF.NO.	Q4007			Q4008			Q4009			Q4010			Q4011			Q4012		
MODE	E	B	C	E	B	C	E	B	C	E	B	C	E	B	C	E	B	C
STOP	0	4.6	0	0	0	11.8	11.8	11.8	0.4	1.8	0	3.1	0	0	4.4	0	0	0
REC	0	4.6	0	0	0	0	11.8	0	11.8	1.8	2.5	3.0	0	0	4.4	0	0	0
PLAY	0	0	5.6	0	0	11.8	11.9	11.8	0.3	1.8	2.5	3.1	0	5.6	0	0	0	0
CUE	0	0	11.8	0	0	11.8	11.8	11.8	0.3	1.9	2.5	3.2	0	5.6	0	0	0.7	0
REV	0	0	5.6	0	0	11.8	11.9	11.8	0.4	1.9	2.5	0	0	5.6	0	0	0	0
REF.NO.	Q4013			Q4015			Q4016			Q4017			Q4018			Q4019		
MODE	E	B	C	E	B	C	E	B	C	E	B	C	E	B	C	E	B	C
STOP	0	0	0	0	0	10.5	10.5	10.5	0	10.5	10.5	0	0	0	10.6	0	0	10.5
REC	0	0	0	0	0	10.5	10.5	10.5	0	10.5	10.5	0	0	0	10.5	0	0	10.5
PLAY	0	0	0	0	0	10.4	10.4	10.4	0	10.5	10.4	0	0	0	10.5	0	0	10.4
CUE	0	0	0	0	0	10.4	10.4	10.4	0	10.4	10.4	0	0	0	10.5	0	0	0
REV	0	0.7	0	0	0	10.4	10.4	10.4	0	10.4	10.4	0	0	0	10.5	4.2	0	0
REF.NO.	Q4020																	
MODE	E	B	C															
STOP	10.5	10.4	0															
REC	10.5	10.4	0															
PLAY	10.4	10.4	0															
CUE	10.4	0	10.4															
REV	10.4	0	10.4															

REF.NO.	IC4001																			
MODE	1	2	3	4	5	6	7													
STOP	0	0	0	0	4.4	10.6	0													
REC	0	0	0	0	0	0	0													
PLAY	0	0	0	0	0	0	5.6													
REF.NO.	IC4002																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
STOP	5.0	5.1	5.2	5.5	5.6	5.6	0	5.5	5.6	5.5	0	0.4	10.6	5.6	5.5	5.6	5.6	0	0	4.5
REC	5.0	5.1	5.1	5.6	5.6	5.6	0	5.5	5.6	5.6	0	0.4	10.6	5.5	5.6	5.6	5.5	0	0	0
PLAY	5.0	5.1	5.3	5.5	5.5	5.5	0	5.5	5.5	5.4	0	0	10.5	5.5	5.5	5.5	5.5	0	0	0
REF.NO.	IC4002				IC4003															
MODE	21	22	23	24		1	2	3	4	5	6	7	8	9						
STOP	5.5	5.4	5.4	5.3		0	0	0	0	0	0	0	0	0						
REC	5.5	5.4	5.4	5.3		0	0	0	0	0	0	0	0	0						
PLAY	5.5	5.4	5.3	5.3		0	0	0	0	0	0	0	0	0						
REF.NO.	IC4004																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18		
STOP	5.8	0.7	0.7	5.4	5.4	5.0	5.4	5.4	0	5.4	0	5.0	5.4	5.5	0.7	0.7	10.6	5.8		
REC	5.8	0.7	0.7	5.4	5.4	5.0	5.4	5.4	0	5.4	0	5.0	5.4	5.5	0.7	0.7	10.6	5.8		
PLAY	5.8	0.7	0.7	5.4	5.3	5.0	5.4	5.4	0	5.4	0	5.0	5.3	5.4	0.7	0.7	10.5	5.7		
REF.NO.	IC4005																			
MODE	1	2	3	4	5	6	7													
STOP	0	0	0	0	0	10.6	0													
REC	0	0	0	0	0	10.6	0													
PLAY	0	0	0	0	0	0	0													
REF.NO.	IC4006																			
MODE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
STOP	5.1	5.2	5.4	5.6	5.6	5.6	0	5.6	5.6	5.6	0	0.4	10.6	5.6	5.6	5.6	5.6	0	0	4.5
REC	5.1	5.1	5.4	5.5	5.5	5.5	0	5.5	5.5	5.5	0	0.4	0	5.5	5.5	5.5	5.5	0	0	4.4
PLAY	5.1	5.1	5.4	5.5	5.5	5.5	0	5.5	5.5	5.5	0	0	0	5.5	5.5	5.5	5.5	0	0	0
REF.NO.	IC4006				IC4007															
MODE	21	22	23	24		1	2	3	4	5	6	7	8	9						
STOP	5.4	5.4	5.4	5.4		0	0	0	0	0	0	0	0	0						
REC	5.4	5.4	5.3	5.3		0	0	0	0	0	0	0	0	0						
PLAY	5.4	5.4	5.3	5.3		0	0	0	0	0	0	0	0	0						
REF.NO.	IC4008										IC4009									
MODE	1	2	3	4	5	6	7	8	9		1	2	3	4	5	6	7	8		
STOP	7.3	0	7.3	0	0	7.3	0	6.4	10.6		5.6	5.6	5.6	0	5.6	5.6	5.5	10.6		
REC	7.3	0	7.2	0	0	7.3	0	6.4	10.6		5.6	5.6	5.6	0	5.6	5.6	5.5	10.6		
PLAY	7.2	0	7.2	0	0	7.2	0	6.3	10.5		5.5	5.5	5.5	0	5.5	5.5	5.5	10.5		
REF.NO.	TP4001	TP4002	TP4003	TP4004																
MODE																				
STOP	0	0	0	0																
REC	0	0	0	0																
PLAY	0	0	0	0																

VOLTAGE MEASUREMENT:
1. CUE, REVIEW,
COLOR BAR SIGNAL IN SLP MODE.
2. OTHERS
COLOR BAR SIGNAL IN SP MODE.

SIGNAL PROCESS SCHEMATIC DIAGRAM

VOLTAGE MEASUREMENT:
COLOR BAR SIGNAL IN SP REC MODE WITH BRACKET.
COLOR BAR SIGNAL IN SP PLAY MODE WITHOUT BRACKET.

SPECIAL NOTE:
ALL INTEGRATED CIRCUITS AND MANY OTHER SEMICONDUCTOR DEVICES ARE ELECTROSTATICALLY SENSITIVE AND THEREFORE REQUIRE THE SPECIAL HANDLING TECHNIQUES DESCRIBED UNDER THE "ELECTROSTATICALLY SENSITIVE (ES) DEVICES" SECTION OF THIS SERVICE MANUAL.

LUMINANCE SIGNAL PROCESS SECTION
NOTE: REF. NO. ON C.B.A. IS PRINTED AS FOLLOWS.
EXAMPLE: C.B.A.···R2, REF. NO. 3000 SERIES
SCHEMATIC DIAGRAM···R3002
(R3002 IS ABBREVIATED TO R2)

TV
NOT

CALLOUTS NEXT TO WIRING PLUGS INDICATE CONNECTIONS TO OTHER SCHEMATIC DIAGRAM.

E
D
C
B
A
1 2 3 4 5 6 7 8 9

VOLTAGE MEASUREMENT:
COLOR BAR SIGNAL IN SP REC MODE WITH BRACKET.
COLOR BAR SIGNAL IN SP PLAY MODE WITHOUT BRACKET.

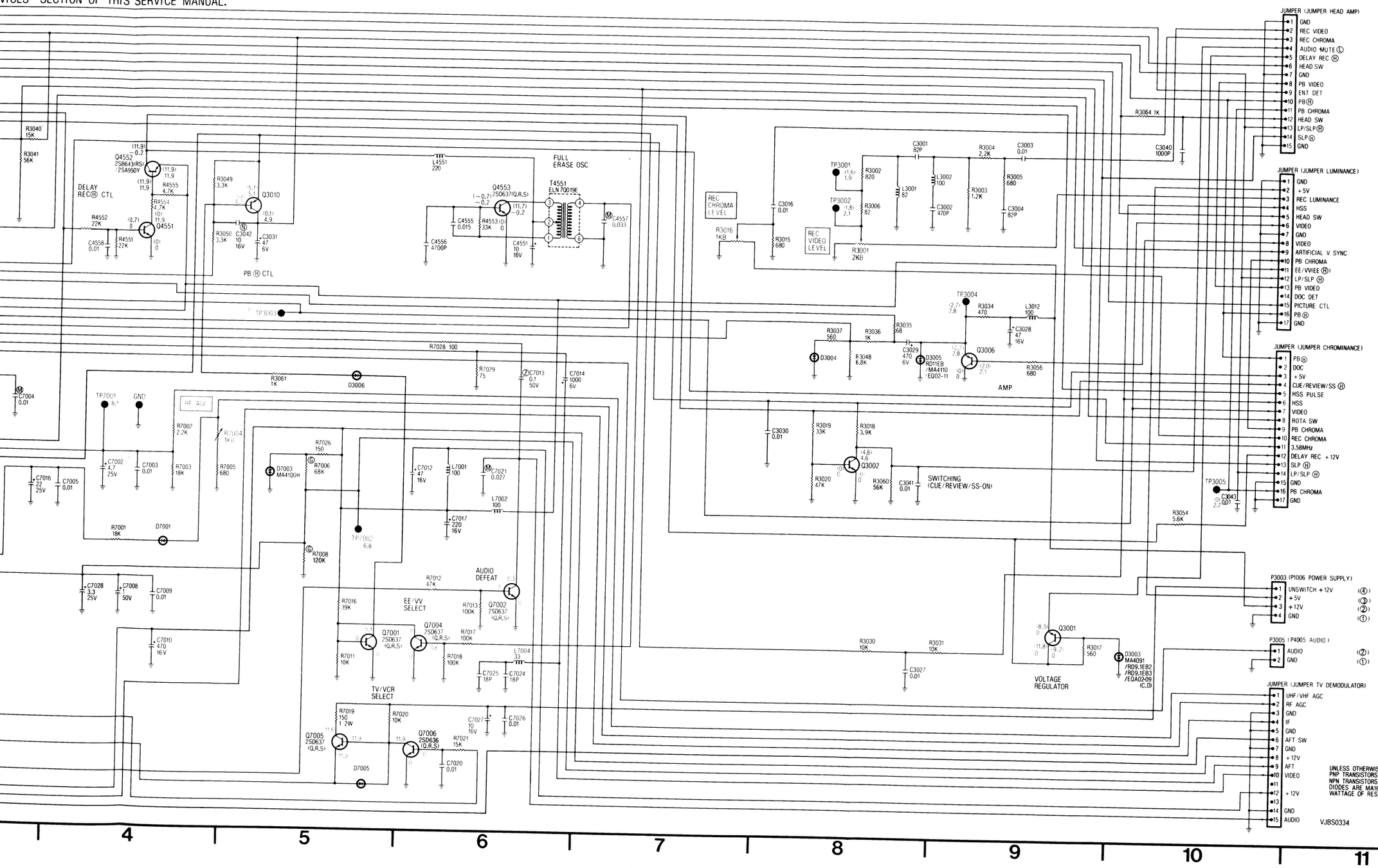
L NOTE:
TEGRATED CIRCUITS AND MANY OTHER SEMICONDUCTOR DEVICES ARE
OSTATICALLY SENSITIVE AND THEREFORE REQUIRE THE SPECIAL
NG TECHNIQUES DESCRIBED UNDER THE "ELECTROSTATICALLY SENSITIVE
VICES" SECTION OF THIS SERVICE MANUAL.

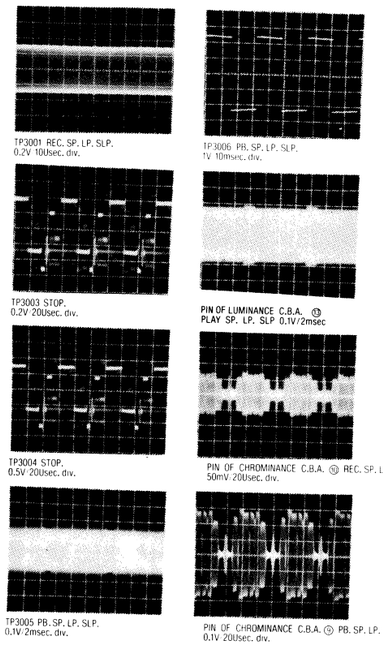
LUMINANCE SIGNAL PROCESS SECTION

NOTE: REF. NO. ON C.B.A. IS PRINTED AS FOLLOWS.
EXAMPLE: C.B.A.···R2, REF. NO. 3000 SERIES
SCHEMATIC DIAGRAM···R3002
(R3002 IS ABBREVIATED TO R2)

TV DEMODULATOR SECTION

NOTE : REF. NO. ON. C.B.A. IS PRINTED AS FOLLOWS.
EXAMPLE: C.B.A.···R2, REF.NO. 7000 SERIES
SCHEMATIC DIAGRAM···R7002
(R7002 IS ABBREVIATED TO R2)





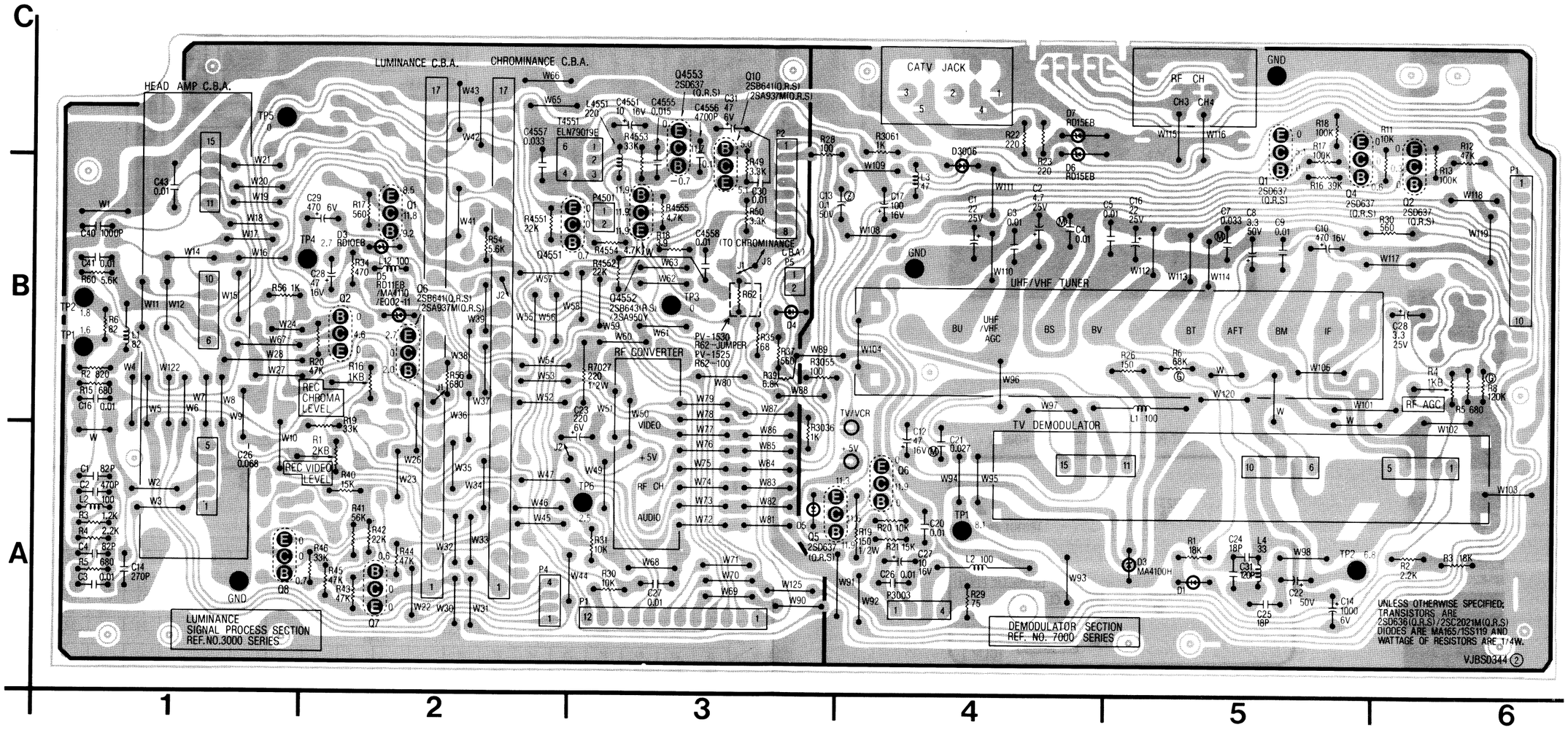
LUMINANCE SIGNAL PROCESS SECTION	
Q3004	7-B
Q3005	8-B
Q3006	9-C
Q3010	5-D
Q3012	6-D

DEMODULATOR SECTION	
Q7001	5-B
Q7002	6-B
Q7004	6-B
Q7005	5-A
Q7006	6-A

SIGNAL PROCESS C.B.A. VEPS0344B1 (PV-1530)
VEPS0344B2 (PV-1525)

VOLTAGE MEASUREMENT: COLOR BAR SIGNAL IN SP REC MODE.

SPECIAL NOTE:
ALL INTEGRATED CIRCUITS AND MANY OTHER SEMICONDUCTOR DEVICES ARE ELECTROSTATICALLY SENSITIVE AND THEREFORE REQUIRE THE SPECIAL HANDLING TECHNIQUES DESCRIBED UNDER THE "ELECTROSTATICALLY SENSITIVE (ES) DEVICES" SECTION OF THIS SERVICE MANUAL.



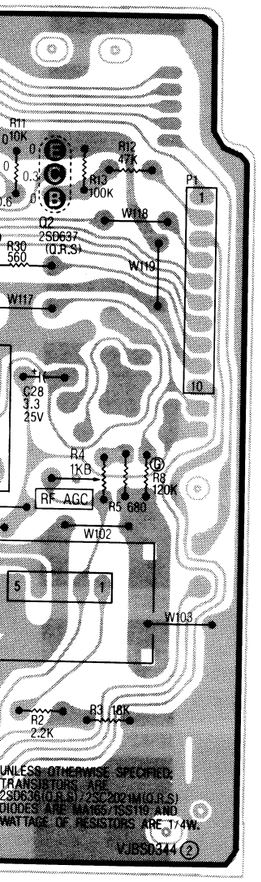
REF.NO.	Q3001			Q3002			Q3006			Q3007			Q3008			Q3010		
MODE	E	B	C	E	B	C	E	B	C	E	B	C	E	B	C	E	B	C
STOP	0	−0.2	−0.2	0	0	4.6	2.6	1.9	0	0	0.6	0	0	0.7	0	4.9	4.9	0
REC	8.5	9.2	11.8	0	0	4.6	2.6	1.9	0	0	0.6	0	0	0.7	0	4.9	4.9	0
PLAY	0	0	0	0	0	4.6	2.6	1.9	0	0	0.6	0	0	0.7	0	4.9	4.0	4.7
CUE	0	0	0	0	0.7	0	2.7	1.9	0	0	0.6	0	0.2	0.8	0.2	4.9	4.0	4.7
REV	0	0	0	0	0.7	0	2.7	2.0	0	0	0.6	0	0.2	0.8	0.2	4.9	4.0	4.7

REF.NO.	Q3012						Q4501			Q4502			Q4503					
MODE	E	B	C				E	B	C	E	B	C	E	B	C			
STOP	0	0	0				0	0	12.0	12.1	12.1	−0.2	0	−0.2	−0.2			
REC	0	0	0				0	0.7	0	12.1	11.3	12.0	0	−0.7	11.9			
PLAY	0	0.7	0				0	0	12.0	12.1	12.1	0.2	0	0.2	0.2			
CUE	0	0.7	0				0	0	12.0	12.1	12.1	0.2	0	0.2	0.2			
REV	0	0.7	0.2				0	0	12.0	12.1	12.1	0.2	0	0.2	0.2			

REF.NO. / MODE	TP3001	TP3002	TP3003	TP3004	TP3005	TP3006
STOP	1.3	1.4	3.4	2.6	0	4.9
REC	1.3	1.4	3.3	2.6	0	2.4
PLAY	1.5	1.9	3.1	2.7	2.6	2.4
CUE	1.5	1.6	3.0	2.7	2.6	2.4
REV	1.5	1.6	2.9	2.7	2.6	2.4

VOLTAGE MEASUREMENT:
1. CUE, REVIEW.
   COLOR BAR SIGNAL IN SLP MODE.
2. OTHERS
   COLOR BAR SIGNAL IN SP MODE.

ND MANY OTHER SEMICONDUCTOR DEVICES ARE
VE AND THEREFORE REQUIRE THE SPECIAL
RIBED UNDER THE "ELECTROSTATICALLY SENSITIVE
HIS SERVICE MANUAL.

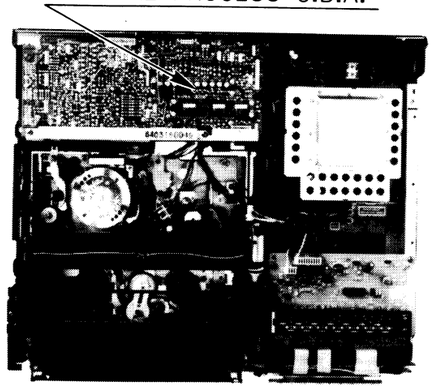


6

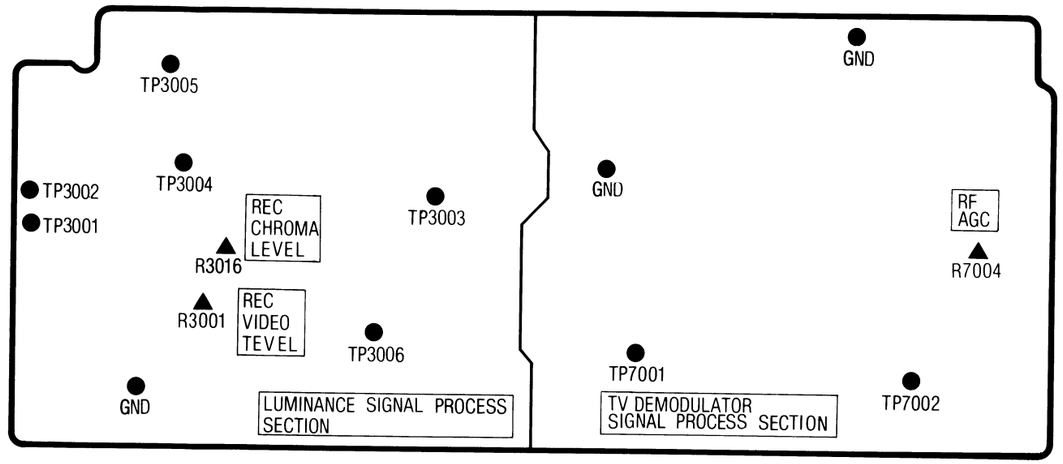
IN SLP MODE.

IN SP MODE.

SIGNAL PROCESS C.B.A.



LOCATION OF TEST POINTS & ADJUSTMENT POINTS



SIGNAL PROCESS SECTION	
Q1	2-B
Q2	2-B
Q6	2-B
Q7	2-A
Q8	1-A
Q10	3-B
Q4551	3-B
Q4552	3-B
Q4553	3-C

DEMODULATOR SECTION	
Q7001	5-C
Q7002	6-C
Q7004	5-C
Q7005	4-A
Q700■	4-A

P3001

1	EXCEPT PB Ⓗ
2	EE/VV(EE Ⓗ)
3	LP/SLP Ⓗ
4	SLP Ⓗ
5	CUE/REVIEW/SS Ⓗ
6	DELAY REC Ⓗ
7	PB Ⓗ
8	3.58MHz
9	HEAD SW
10	PICTURE
11	VSS
12	

P3002

1	AUDIO
2	AUDIO
3	GND
4	VIDEO
5	GND
6	VIDEO
7	GND
8	VIDEO

P3003

1	UNSWITCH +12V
2	+5V
3	+12V
4	GND

P3004

1	HEAD SW
2	V LOCK
3	ENV DET
4	V PULSE

P3005

1	AUDIO
2	GND

P4501

1	GND
2	FULL ERASE

P7001

1	CATV Ⓗ
2	AUDIO DEFEAT
3	DELAY REC Ⓗ
4	BU
5	BS
6	BV
7	BS2
8	BT
9	GND
10	TV/VCR

JUMPER (TO LUMINANCE)

1	GND
2	+5V
3	REC LUMINANCE
4	HSS
5	HEAD SW
6	VIDEO
7	GND
8	VIDEO
9	ARTIFICIAL V SYNC
10	PB CHROMA
11	EE/VV(EE Ⓗ)
12	LP/SLP Ⓗ
13	PB VIDEO
14	DOC DET
15	PICTURE CTL
16	PB Ⓗ
17	GND

JUMPER
(TO HEAD AMP)

1	GND
2	REC VIDEO
3	REC CHROMA
4	AUDIO MUTE Ⓛ
5	DELAY REC Ⓗ
6	HEAD SW
7	GND
8	PB VIDEO
9	ENT DET
10	PB Ⓗ
11	PB CHROMA
12	HEAD SW PULSE
13	LP/SLP Ⓗ
14	SLP Ⓗ
15	GND

JUMPER
(TO CHROMINANCE)

1	PB Ⓗ
2	DOC
3	+5V
4	CUE/REVIEW/SS Ⓗ
5	HSS PULSE
6	HSS
7	VIDEO
8	ROTA SW
9	PB CHROMA
10	REC CHROMA
11	3.58MHz
12	DELAY REC +12V
13	SLP Ⓗ
14	LP/SLP Ⓗ
15	GND
16	PB CHROMA
17	GND

JUMPER
(TO TV DEMODULATOR)

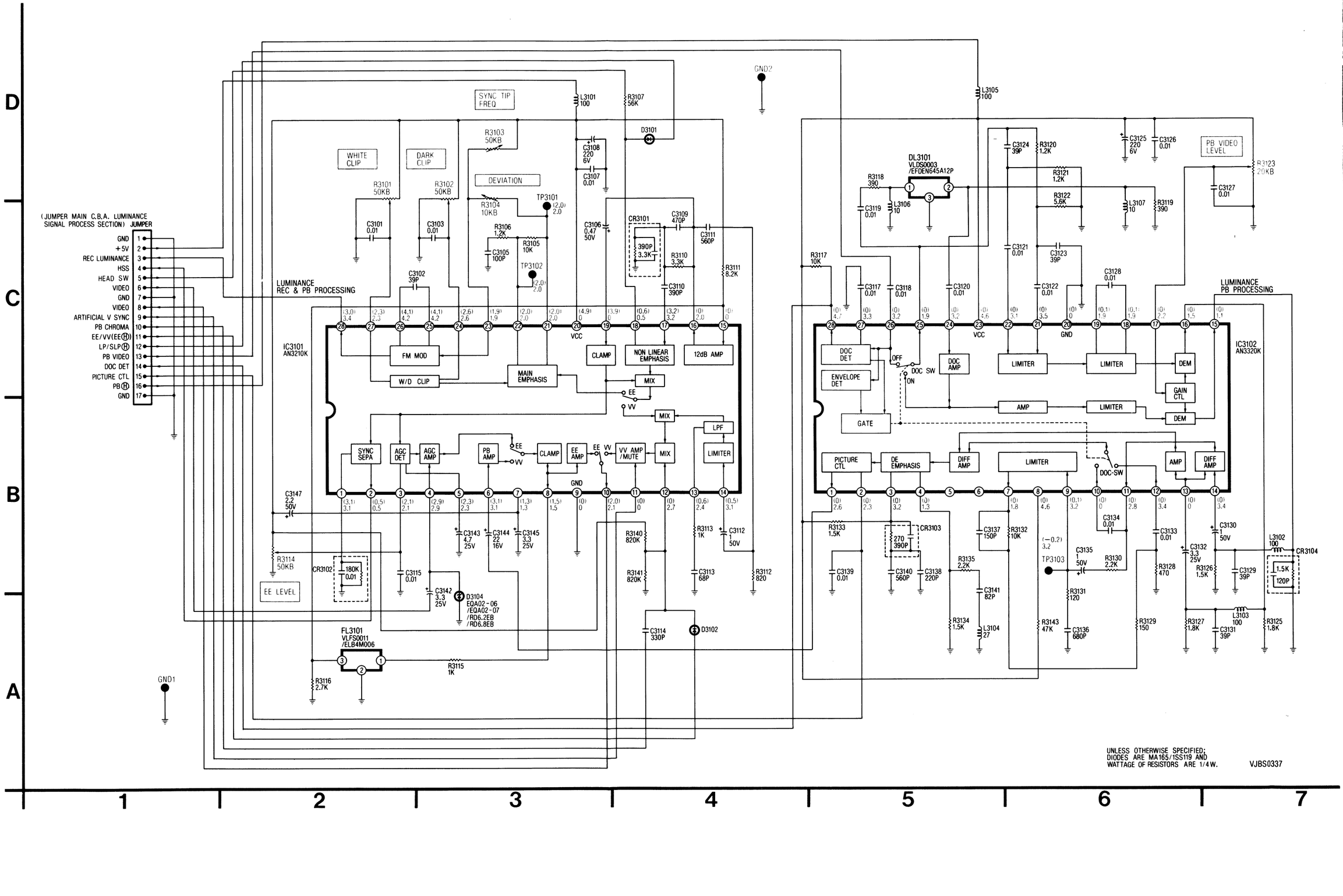
1	UHF/VHF AGC
2	RF AGC
3	GND
4	IF
5	GND
6	AFT SW
7	GND
8	+12V
9	AFT
10	VIDEO
11	
12	+12V
13	
14	GND
15	AUDIO

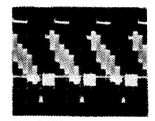
LUMINANCE SCHEMATIC DIAGRAM

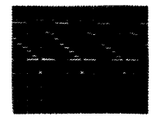
CALLOUTS NEXT TO WIRING PLUGS INDICATE CONNECTIONS TO OTHER SCHEMATIC DIAGRAM.

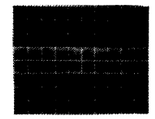
VOLTAGE MEASUREMENT:
COLOR BAR SIGNAL IN SP REC MODE WITH BRACKET.
COLOR BAR SIGNAL IN SP PLAY MODE WITHOUT BRACKET.

SPECIAL NOTE:
ALL INTEGRATED CIRCUITS AND MANY OTHER SEMICONDUCTOR DEVICES ARE ELECTROSTATICALLY SENSITIVE AND THEREFORE REQUIRE THE SPECIAL HANDLING TECHNIQUES DESCRIBED UNDER THE "ELECTROSTATICALLY SENSITIVE (ES) DEVICES" SECTION OF THIS SERVICE MANUAL.



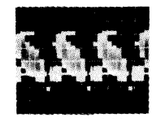

IC3101 ① STOP.
0.2V/200sec. div.

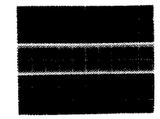

TP3102 REC. SP. LP. SLP.
0.1V/200usec. div.

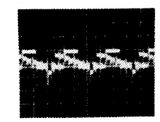

IC3102 ⑩ PB. SP. LP. SLP.
0.5V/5msec. div.


IC3101 ⑦ REC/PB. SP. LP. SLP.
2V/200sec. div.


IC3101 ⑩ PB. SP. LP. SLP.
0.2V/200sec. div.


IC3101 ⑦ REC/PB. SP. LP. SLP.
0.5V/200sec. div.


IC3101 ⑩ REC. SP. LP. SLP.
0.5V/200sec. div.

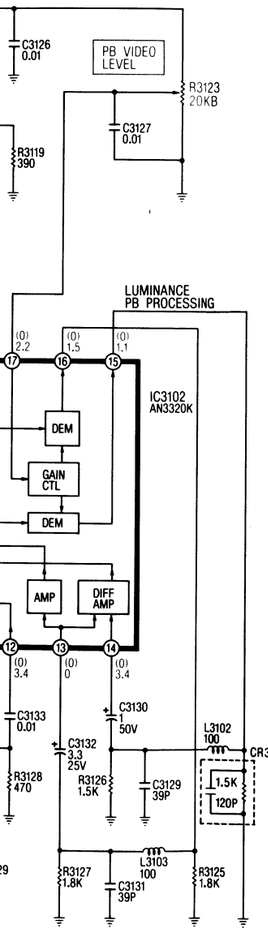

TP3101 REC. SP.
0.2V/200sec. div.

NOTE: REF.
EXAM
(R31

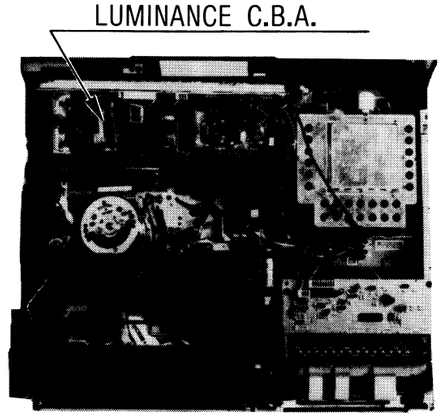
UNLESS OTHERWISE SPECIFIED:
DIODES ARE MA165/1SS119 AND
WATTAGE OF RESISTORS ARE 1/4W.

VJBS0337

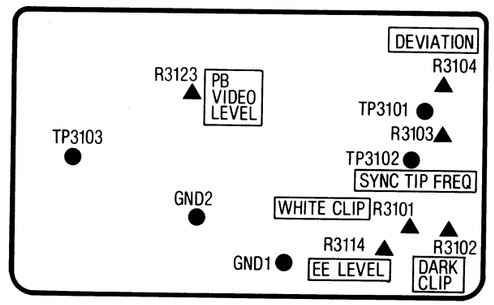
DEVICES ARE
SPECIAL
ALLY SENSITIVE



LUMINANCE C.B.A.



LOCATION OF TEST POINTS & ADJUSTMENT POINTS



VOLTAGE MEASUREMENT:
1. CUE, REVIEW,
COLOR BAR SIGNAL IN SLP MODE.
2. OTHERS
COLOR BAR SIGNAL IN SP MODE.
★ : UNMEASURABLE OR UNNECESSARY TO MEASURE.

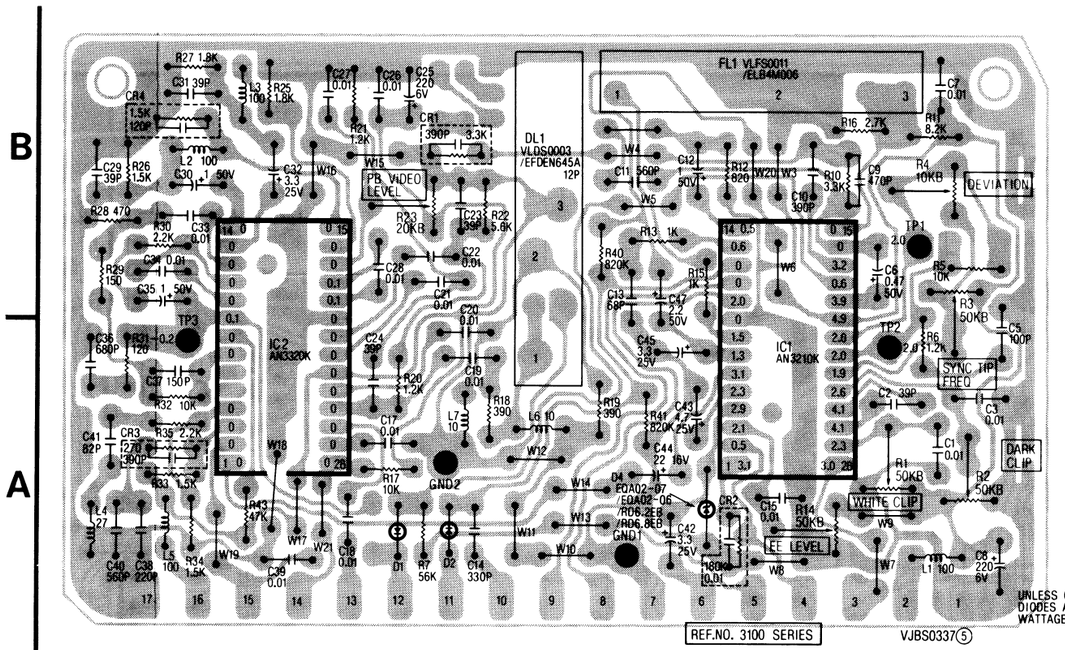
NOTE: REF. NO. ON C.B.A. IS PRINTED AS FOLLOWS.
EXAMPLE: C.B.A.···R2, REF. NO. 3100 SERIES
SCHEMATIC DIAGRAM···R3102
(R3102 IS ABBREVIATED TO R2)

WISE SPECIFIED;
IA165/1SS119 AND
ESISTORS ARE 1/4W. VJBS0337

LUMINANCE C.B.A. VEPS0337A

VOLTAGE MEASUREMENT: COLOR BAR SIGNAL IN SP REC MODE.

CAUTION:DO NOT BEND OR SPREAD APART THE LUMINANCE AND CHROMINANCE PACKS. BY DOING SO DAMAGE TO THE MAIN C.B.A. OR PINS ON THE PACKS MAY RESULT.



UNLESS OTHERWISE SPECIFIED;
DIODES ARE MA165/1SS119 AND
WATTAGE OF RESISTORS ARE 1/4W.

JUMPER

1	GND
2	+5V
3	REC LUMINANCE
4	HSS
5	HEAD SW
6	VIDEO
7	GND
8	VIDEO
9	ARTIFICIAL V SYNC
10	PB CHROMA
11	EE/VV(EE Ⓗ)
12	LP/SLP Ⓗ
13	PB VIDEO
14	DOC DET
15	PICTURE CTL
16	PB Ⓗ
17	GND

REF.NO. / MODE	IC3101																		
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
STOP	3.1	0.4	2.1	2.9	2.3	3.1	1.3	1.5	0	1.9	0	4.3	0.7	0.6	0	2.0	3.2	1.5	3.9	4.9
REC	3.1	0.5	2.1	2.9	2.3	3.1	1.3	1.5	0	2.0	0	0	0.6	0.5	0	0	3.2	0.6	3.9	4.9
PLAY	3.1	0.5	2.1	2.9	2.3	3.1	1.3	1.5	0	2.1	0	2.7	2.4	3.1	0	2.0	3.2	0.5	0	0
CUE	3.1	0.3	2.1	2.9	2.3	3.1	1.3	1.5	0	2.1	0.1	2.6	2.5	3.1	1.3	2.0	3.1	2.0	3.9	4.9
REV	3.1	0.4	2.1	2.9	2.3	3.1	1.3	1.5	0	2.0	0.1	2.6	2.5	3.1	1.3	2.0	3.2	2.1	3.9	4.9

REF.NO. / MODE	IC3101																			
	21	22	23	24	25	26	27	28												
STOP	2.0	2.0	1.9	2.6	4.1	4.1	2.3	3.0												
REC	2.0	2.0	1.9	2.6	4.1	4.1	2.3	3.0												
PLAY	2.0	2.0	1.9	2.6	4.2	4.2	2.3	3.4												
CUE	2.0	2.0	2.0	2.6	4.2	4.2	2.3	3.4												
REV	2.0	2.0	1.9	2.5	4.2	4.2	2.3	3.4												

REF.NO. / MODE	IC3102																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
STOP	0	0	0	0	★	★	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0
REC	0	0	0	0	★	★	0	0	0.1	0	0	0	0	0	0	0	0	0.1	0.1	0
PLAY	2.6	2.3	3.2	1.3	★	★	1.8	4.6	3.2	0	2.8	3.4	0	3.4	1.1	1.5	2.2	1.9	1.9	0
CUE	2.6	2.4	3.3	1.4	★	★	1.9	4.6	3.2	3.5	2.8	3.5	3.4	3.4	1.0	1.5	2.2	1.9	1.9	0
REV	2.6	2.3	3.3	1.4	★	★	1.8	4.6	3.2	3.4	2.8	3.5	3.5	3.4	1.1	1.5	2.2	1.9	1.9	0

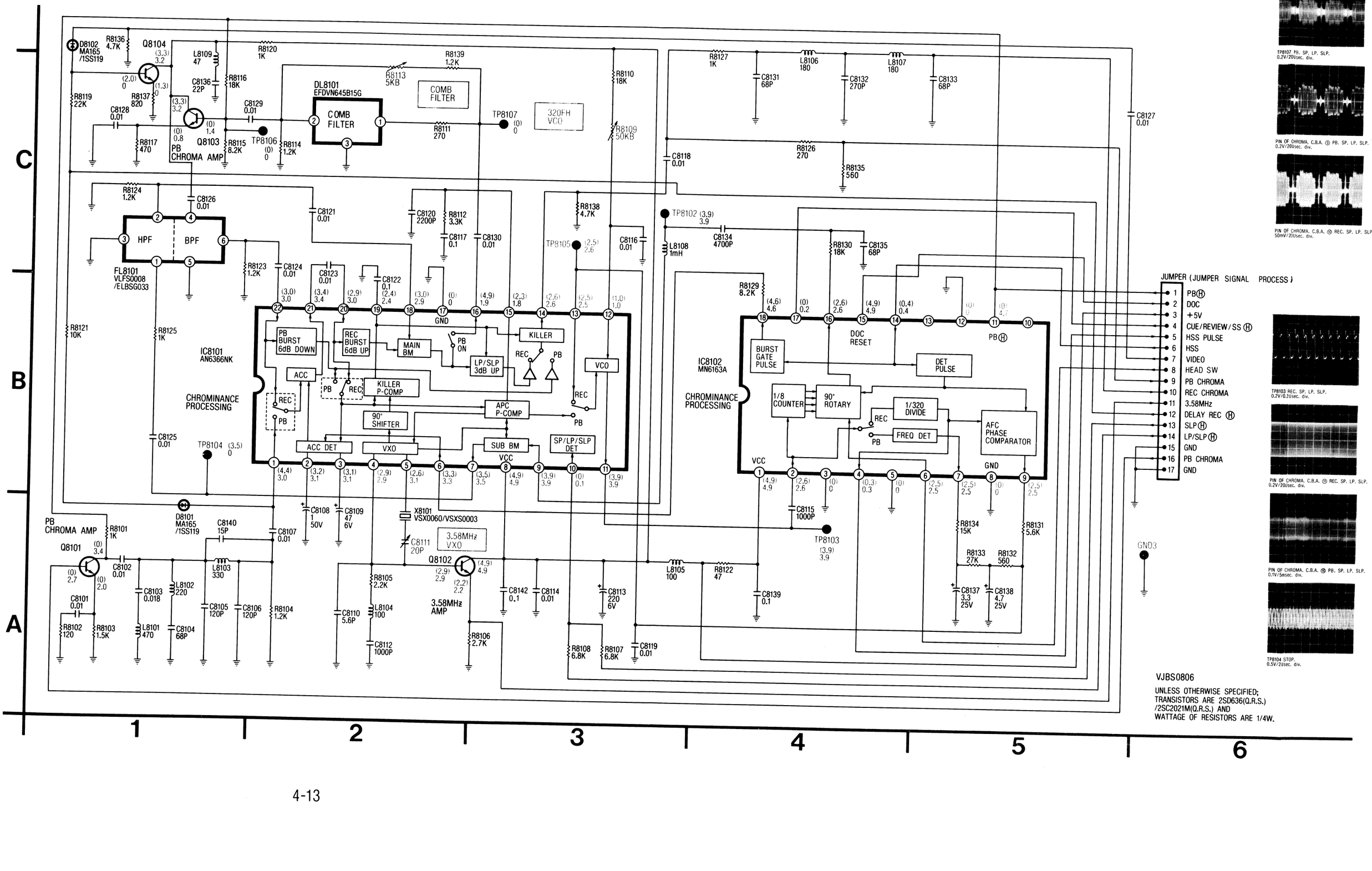
REF.NO. / MODE	IC3102																			
	21	22	23	24	25	26	27	28												
STOP	0	0	0	0	0	0	0	0												
REC	0	0	0	0	0	0	0	0												
PLAY	3.5	3.1	4.6	3.2	1.9	3.2	3.3	4.7												
CUE	3.5	3.2	4.6	3.2	1.9	3.2	3.1	0												
REV	3.5	3.1	4.6	3.2	1.8	3.2	3.2	4.6												

REF.NO. / MODE	TP3101	TP3102	TP3103
STOP	2.0	2.0	0
REC	2.0	2.0	0.2
PLAY	2.0	2.0	3.2
CUE	2.0	2.0	3.2
REV	2.0	2.0	3.2

CHROMINANCE SCHEMATIC DIAGRAM

VOLTAGE MEASUREMENT:
COLOR BAR SIGNAL IN SP REC MODE WITH BRACKET.
COLOR BAR SIGNAL IN SP PLAY MODE WITHOUT BRACKET.

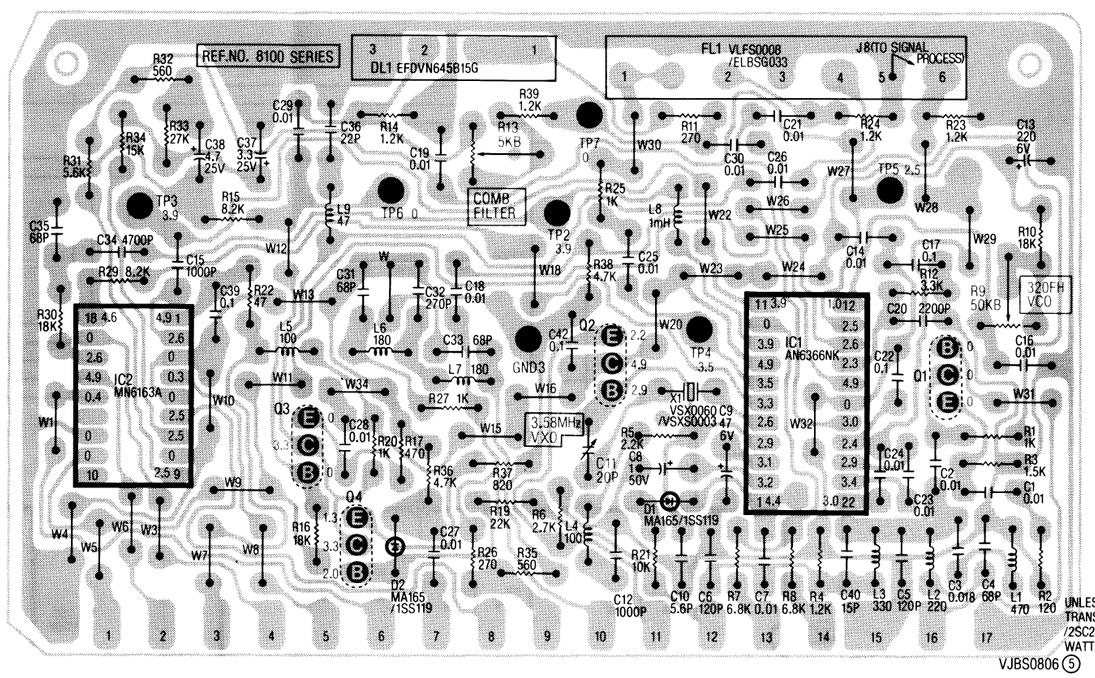
CALLOUTS NEXT TO WIRING PLUGS INDICATE CONNECTIONS TO OTHER SCHEMATIC DIAGRAM.



CHROMINANCE C.B.A. VEPS0806A

VOLTAGE MEASUREMENT: COLOR BAR SIGNAL IN SP REC MODE.

CAUTION:DO NOT BEND OR SPREAD APART THE LUMINANCE AND CHROMINANCE PACKS. BY DOING SO DAMAGE TO THE MAIN C.B.A. OR PINS ON THE PACKS MAY RESULT.



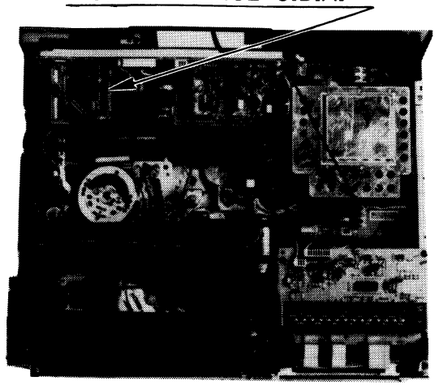
JUMPER (TO SIGNAL PROCESS)

1	PB Ⓗ
2	DOC
3	+5V
4	CUE/REVIEW/SS Ⓗ
5	HSS PULSE
6	HSS
7	VIDEO
8	HEAD SW
9	PB CHROMA
10	REC CHROMA
11	3.58MHz
12	DELAY REC +12V
13	SLP Ⓗ
14	LP/SLP Ⓗ
15	GND
16	PB CHROMA
17	GND

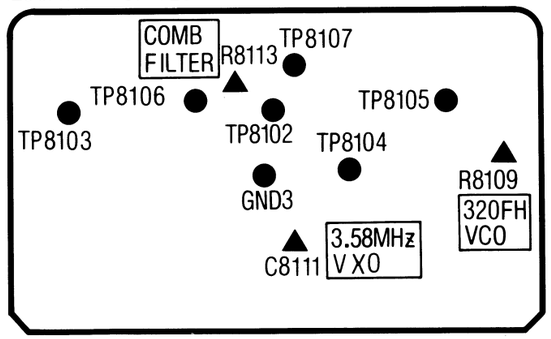
UNLESS OTHERWISE SPECIFIED;
TRANSISTORS ARE 2SD636(Q.R.S.)
/2SC2021M(Q.R.S.) AND
WATTAGE OF RESISTORS ARE 1/4W.

VJBS0806 ⑤

CHROMINANCE C.B.A.



LOCATION OF TEST POINTS & ADJUSTMENT POINTS



SPECIAL NOTE:
ALL INTEGRATED CIRCUITS AND MANY OTHER SEMICONDUCTOR DEVICES ARE ELECTROSTATICALLY SENSITIVE AND THEREFORE REQUIRE THE SPECIAL HANDLING TECHNIQUES DESCRIBED UNDER THE "ELECTROSTATICALLY SENSITIVE (ES) DEVICES" SECTION OF THIS SERVICE MANUAL.

NOTE: REF. NO. ON C.B.A. IS PRINTED AS FOLLOWS.
EXAMPLE: C.B.A.···R2, REF. NO. 8100 SERIES
SCHEMATIC DIAGRAM···R8102
(R8102 IS ABBREVIATED TO R2)

VOLTAGE MEASUREMENT:
1. CUE, REVIEW,
COLOR BAR SIGNAL IN SLP MODE.
2. OTHERS
COLOR BAR SIGNAL IN SP MODE.
★ : UNMEASURABLE OR UNNECESSARY TO MEASURE.

REF.NO. / MODE	Q8101			Q8102			Q8103			Q8104								
	E	B	C	E	B	C	E	B	C	E	B	C						
STOP	0	0	0.1	2.3	2.9	4.9	0	0	4.9	0	0	4.9						
REC	0	0	0	2.2	2.9	4.9	0	0	3.3	1.3	2.0	3.3						
PLAY	2.0	2.7	3.4	2.2	2.9	4.9	0.8	1.4	3.2	0	0	3.2						
CUE	1.9	2.6	3.4	2.2	2.9	4.9	0.8	1.4	3.2	0	0	3.2						
REV	2.0	2.7	3.4	2.2	2.9	4.8	0.7	1.4	3.2	0	0	3.2						

REF.NO. / MODE	IC8101																	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
STOP	3.0	2.9	3.1	2.9	3.1	3.3	3.5	4.9	3.9	2.9	3.9	1.0	2.5	0	1.8	1.9	0	2.9	2.9	2.9
REC	4.4	3.2	3.1	2.9	2.6	3.3	3.5	4.9	3.9	0	3.9	1.0	2.5	2.6	2.3	4.9	0	3.0	2.4	2.9
PLAY	3.0	3.1	3.1	2.9	3.1	3.3	3.5	4.9	3.9	0.1	3.9	1.0	2.5	2.6	1.8	1.9	0	2.9	2.4	3.0
CUE	2.9	3.1	3.1	2.9	3.1	3.3	3.5	4.9	3.9	3.0	3.9	0.7	2.5	2.6	1.8	1.9	0	2.9	2.5	3.0
REV	2.9	3.1	3.1	2.9	3.1	3.3	3.5	4.9	3.9	2.9	3.9	0.9	2.5	2.6	1.8	1.9	0	2.9	2.5	3.0

REF.NO. / MODE	IC8101		IC8102																	
	21	22	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
STOP	3.3	3.0	4.9	2.6	0	0.3	0	0	2.5	0	2.5	★	0	0	★	0.5	4.9	2.5	0	4.6
REC	3.4	3.0	4.9	2.6	0	0.3	0	2.5	2.5	0	2.5	★	0	0	★	0.4	4.9	2.6	0	4.6
PLAY	3.4	3.0	4.9	2.6	0	0.3	0	2.5	2.5	0	2.5	★	4.7	0	★	0.4	4.9	2.6	0.2	4.6
CUE	3.4	3.0	4.9	2.6	0	0.3	0	2.5	2.5	0	2.5	★	4.7	0	★	0.5	4.9	2.6	3.9	4.6
REV	3.4	3.0	4.9	2.6	0	0.3	0	2.5	2.5	0	2.5	★	4.7	0	★	0.4	4.9	2.5	3.9	4.6

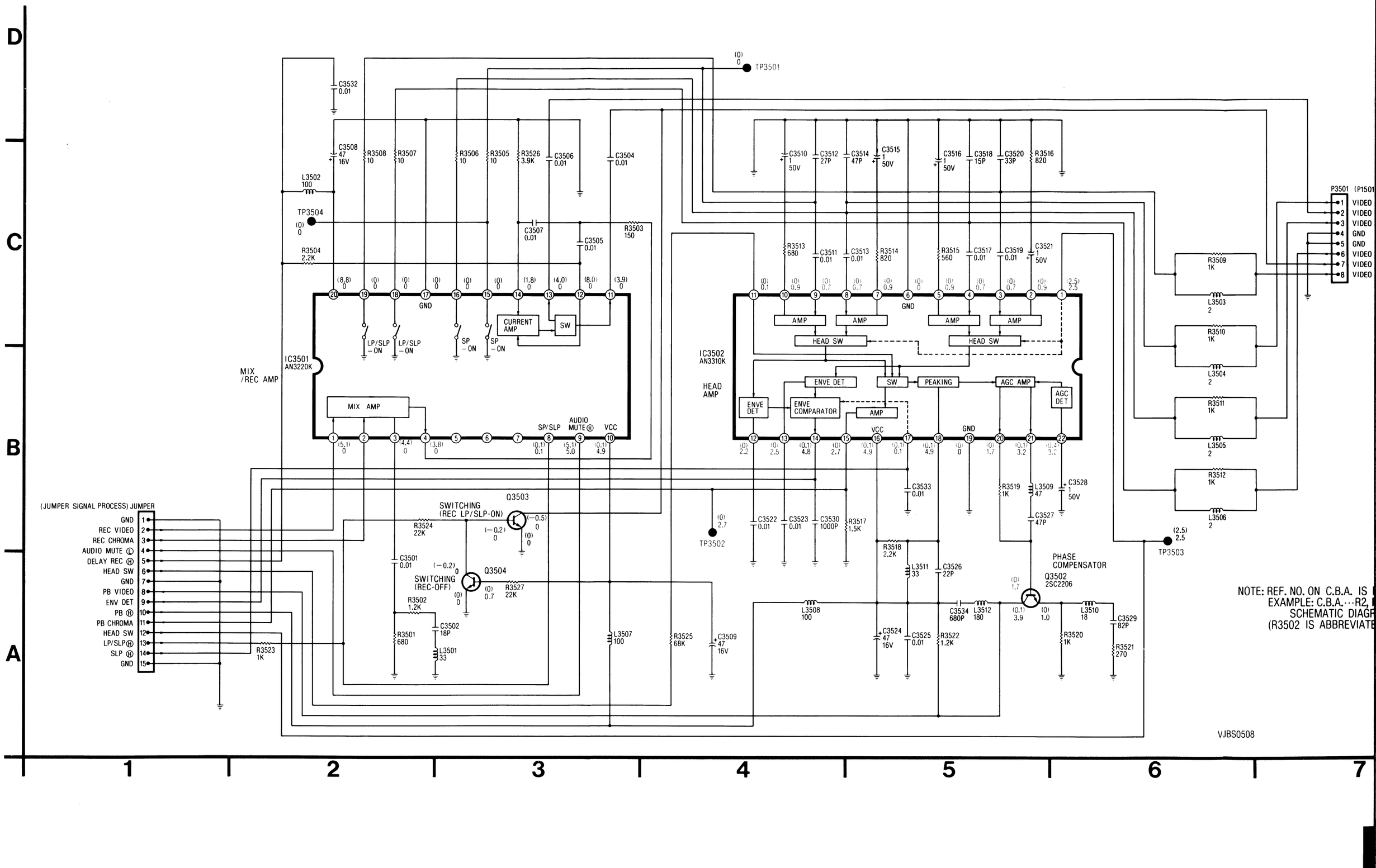
REF.NO. / MODE	TP8102	TP8103	TP8104	TP8105	TP8106	TP8107
STOP	4.0	4.0	3.5	2.6	0	0
REC	3.9	3.9	3.5	2.5	0	0
PLAY	3.9	3.9	0	2.6	0	0
CUE	3.9	3.9	3.4	2.5	0	0
REV	3.9	3.9	3.5	2.5	0	0

HEAD AMP SCHEMATIC DIAGRAM

VOLTAGE MEASUREMENT:
COLOR BAR SIGNAL IN SP REC MODE WITH BRACKET.
COLOR BAR SIGNAL IN SP PLAY MODE WITHOUT BRACKET.

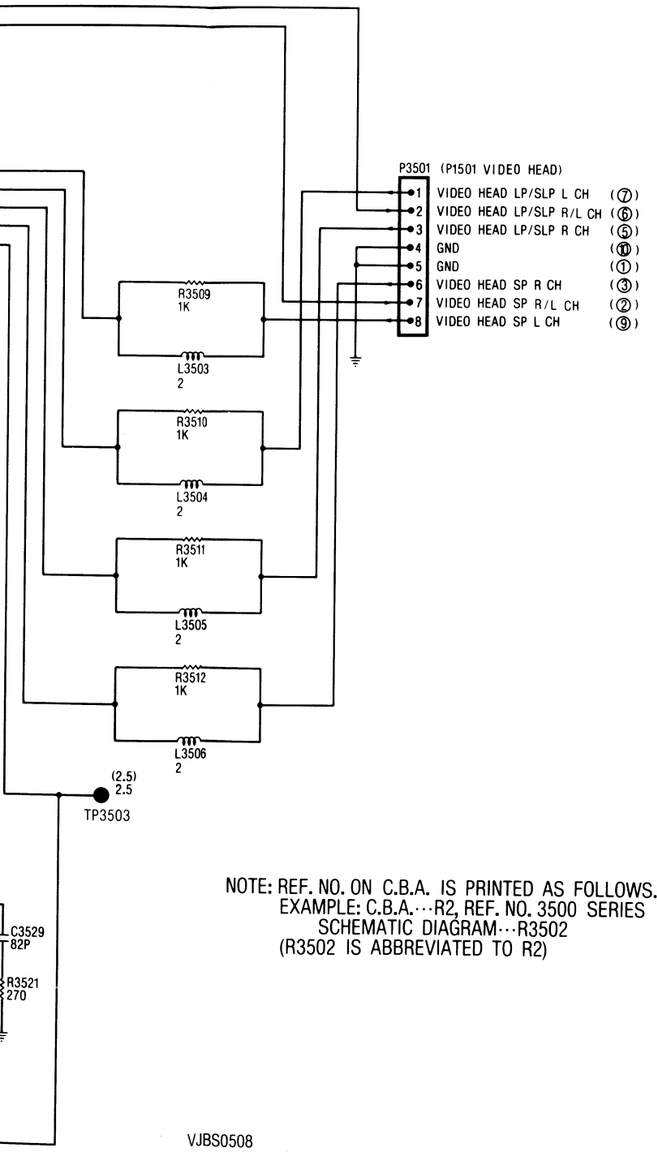
CALLOUTS NEXT TO WIRING PLUGS INDICATE CONNECTIONS TO OTHER SCHEMATIC DIAGRAM.

SPECIAL NOTE:
ALL INTEGRATED CIRCUITS AND MANY OTHE
ELECTROSTATICALLY SENSITIVE AND THEREF
HANDLING TECHNIQUES DESCRIBED UNDER TH
(ES) DEVICES" SECTION OF THIS SERVICE M



NOTE: REF. NO. ON C.B.A. IS
EXAMPLE: C.B.A.···R2,
SCHEMATIC DIAGR
(R3502 IS ABBREVIATE

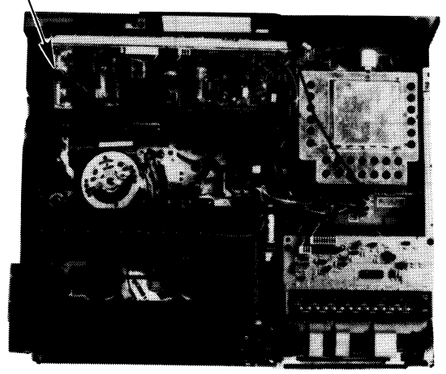
SPECIAL NOTE:
ALL INTEGRATED CIRCUITS AND MANY OTHER SEMICONDUCTOR DEVICES ARE ELECTROSTATICALLY SENSITIVE AND THEREFORE REQUIRE THE SPECIAL HANDLING TECHNIQUES DESCRIBED UNDER THE "ELECTROSTATICALLY SENSITIVE (ES) DEVICES" SECTION OF THIS SERVICE MANUAL.



NOTE: REF. NO. ON C.B.A. IS PRINTED AS FOLLOWS.
EXAMPLE: C.B.A.···R2, REF. NO. 3500 SERIES
SCHEMATIC DIAGRAM···R3502
(R3502 IS ABBREVIATED TO R2)

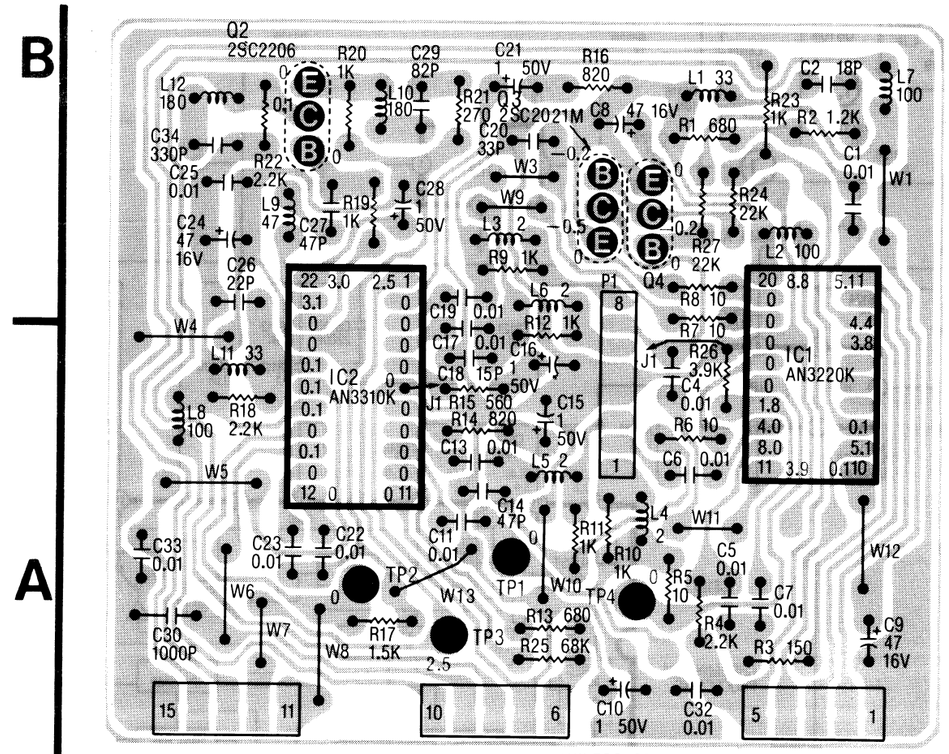
VJBS0508

HEAD AMP C.B.A.



HEAD AMP UNIT VEPS0508A1

VOLTAGE MEASUREMENT: COLOR BAR SIGNAL IN SP REC MODE.



REF. NO. 3500 SERIES

VJBS0508②

UNLESS OTHERWISE SPECIFIED;
NPN TRANSISTORS ARE 2SD636(Q.R.S). AND
WATTAGE OF RESISTORS ARE 1/4W.

(TO HEAD AMP)

1	GND
2	REC VIDEO
3	REC CHROMA
4	AUDIO MUTE Ⓛ
5	DELAY REC Ⓗ
6	HEAD SW
7	GND
8	PB VIDEO
9	ENT DET
10	PB Ⓗ
11	PB CHROMA
12	HEAD SW PULSE
13	LP/SLP Ⓗ
14	SLP Ⓗ
15	GND

P3501

1	VIDEO HEAD LP/SLP L
2	VIDEO HEAD LP/SLP R
3	VIDEO HEAD LP/SLP R
4	GND
5	GND
6	VIDEO HEAD SP R CH
7	VIDEO HEAD SP R/L C
8	VIDEO HEAD SP L CH

REF.NO. / MODE	Q3502 E	Q3502 B	Q3502 C	Q3503 E	Q3503 B	Q3503 C	Q3504 E	Q3504 B	Q3504 C
STOP	0	0	0	0	−0.1	0	0	0	−0.1
REC	0	0	0	0	−0.1	0	0	0	−0.1
PLAY	0.9	1.6	3.8	0	0	0	0	0.7	0
CUE	0.9	1.6	3.8	0	0	0	0	0.7	0
REV	0.9	1.6	3.8	0	0	0	0	0.7	0

REF.NO. / MODE	IC3501 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
STOP	0	0	0	0	0.4	0	0	0.1	4.7	0	0	0	0	0	0	0	0	0	0	0
REC	4.9	4.9	4.2	3.4	0.7	0.3	0	0.1	4.7	0.1	0.5	7.7	3.8	1.7	0	0	0	0	0	8.5
PLAY	0	0	0	0	0.3	0	0	0.1	4.7	4.8	0	0	0	0	0	0	0	0	0	0
CUE	0	0	0	0	0.3	0.1	0.1	0.1	4.7	4.8	0	0	0	0	0	0	0	0	0	0
REV	0	0	0	0	0.4	0	0	0	4.7	4.8	0	0	0	0	0	0	0	0	0	0

REF.NO. / MODE	IC3502 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
STOP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0	0	0
REC	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0	0	0.1	0.1	0	0
PLAY	2.5	0.9	0.7	0.7	0.9	0	0.9	0.7	0.7	0.9	0	1.9	2.2	4.7	2.6	4.7	0.1	4.7	0	1.6
CUE	2.5	0.9	0.7	0.7	0.9	0	0.9	0.7	0.7	0.9	1.5	2.0	2.0	2.5	2.6	4.6	0.1	4.7	0	1.6
REV	2.5	0.9	0.7	0.2	0.9	0	0.9	0.7	0.7	0.9	1.5	2.0	2.0	2.5	2.6	4.7	0.1	4.7	0	1.6

REF.NO. / MODE	IC3501 21	22		TP3501	TP3502	TP3503	TP3504													
STOP	0	0.3		0	0	4.9	0													
REC	0.1	0.3		0	0	2.5	0													
PLAY	3.1	3.0		0	2.6	2.5	0													
CUE	3.1	3.0		0	2.6	2.5	0													
REV	3.1	3.0		0	2.6	2.5	0													

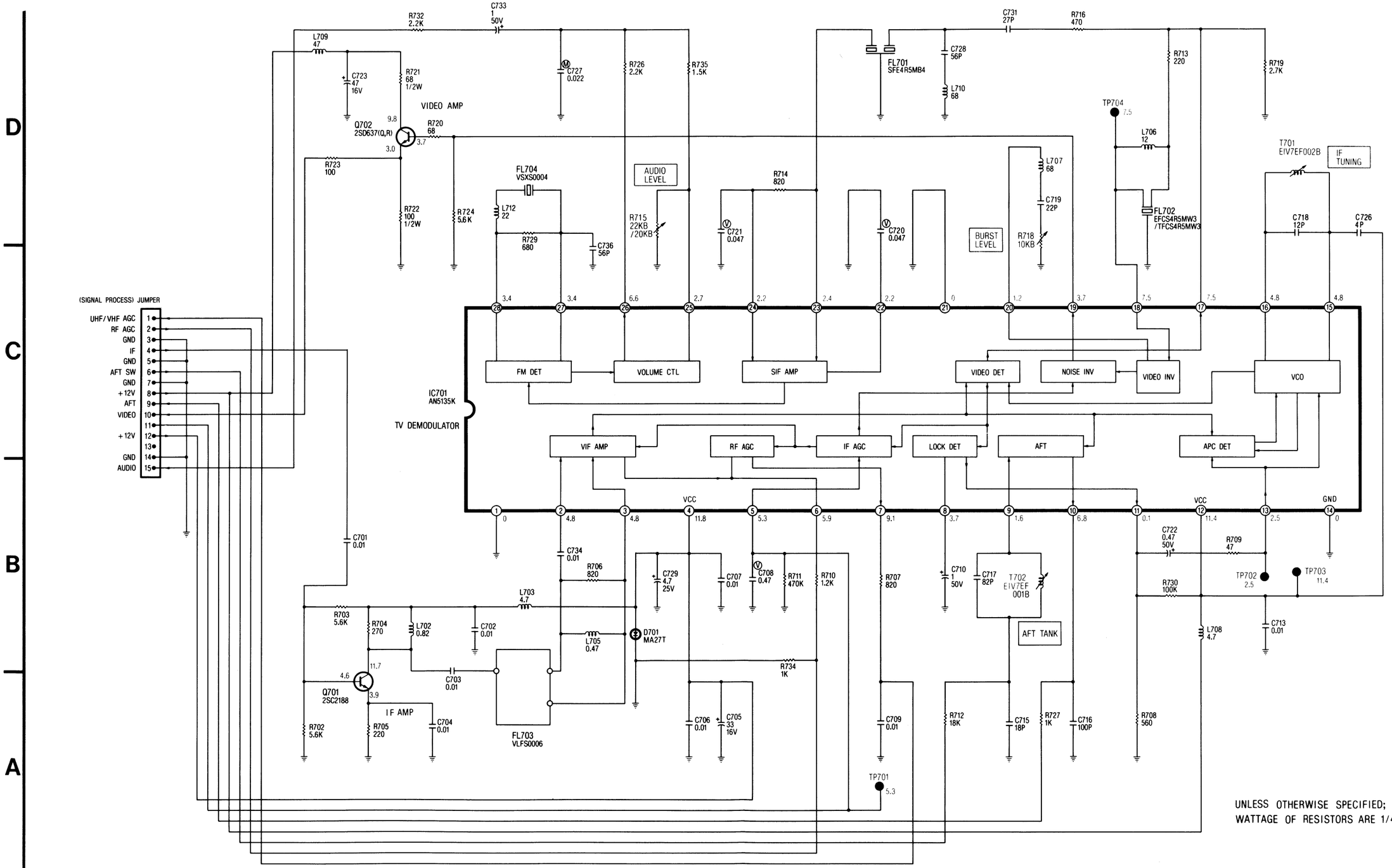
VOLTAGE MEASUREMENT:
1. CUE, REVIEW,
   COLOR BAR SIGNAL IN SLP MODE.
2. OTHERS
   COLOR BAR SIGNAL IN SP MODE.

TV DEMODULATOR SCHEMATIC DIAGRAM

VOLTAGE MEASUREMENT: COLOR BAR SIGNAL IN STOP MODE.

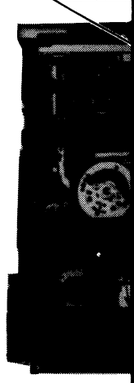
CALLOUTS NEXT TO WIRING PLUGS INDICATE CONNECTIONS TO OTHER SCHEMATIC DIAGRAM.

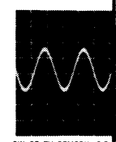
SPECIAL NOTE:
ALL INTEGRATED CIRCUITS AND MANY OTHER SEMICONDUCTOR
ELECTROSTATICALLY SENSITIVE AND THEREFORE REQUIRE THE
HANDLING TECHNIQUES DESCRIBED UNDER THE "ELECTROSTATI
(ES) DEVICES" SECTION OF THIS SERVICE MANUAL.



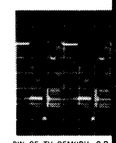
UNLESS OTHERWISE SPECIFIED;
WATTAGE OF RESISTORS ARE 1/4W.

TV D





PIN OF TV DEMODU. C.B.
0.1V/1msec. div.



PIN OF TV DEMODU. C.B.
0.2V/200sec. div.

NOTE : REF. NO. ON.
EXAMPLE: C.B.
SCHEMATIC
(R702 IS ABB

IAL NOTE:
INTEGRATED CIRCUITS AND MANY OTHER SEMICONDUCTOR DEVICES ARE
TROSTATICALLY SENSITIVE AND THEREFORE REQUIRE THE SPECIAL
LING TECHNIQUES DESCRIBED UNDER THE "ELECTROSTATICALLY SENSITIVE
DEVICES" SECTION OF THIS SERVICE MANUAL.

TV DEMODULATOR UNIT VEQS0257

VOLTAGE MEASUREMENT: COLOR BAR SIGNAL
IN STOP MODE.

R719
2.7K

T701
EIV7EF002B
IF TUNING

C718 12P
C726 4P

4.8
4.8
15

VCO

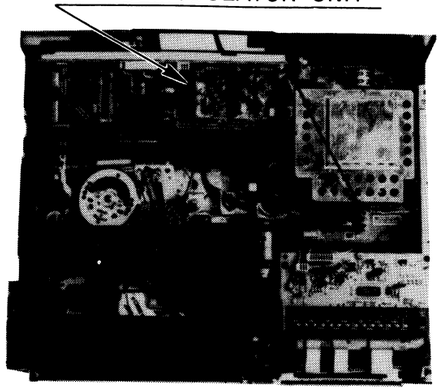
GND
14
0

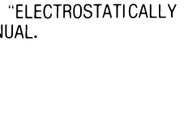
.5

TP703
11.4

713
.01

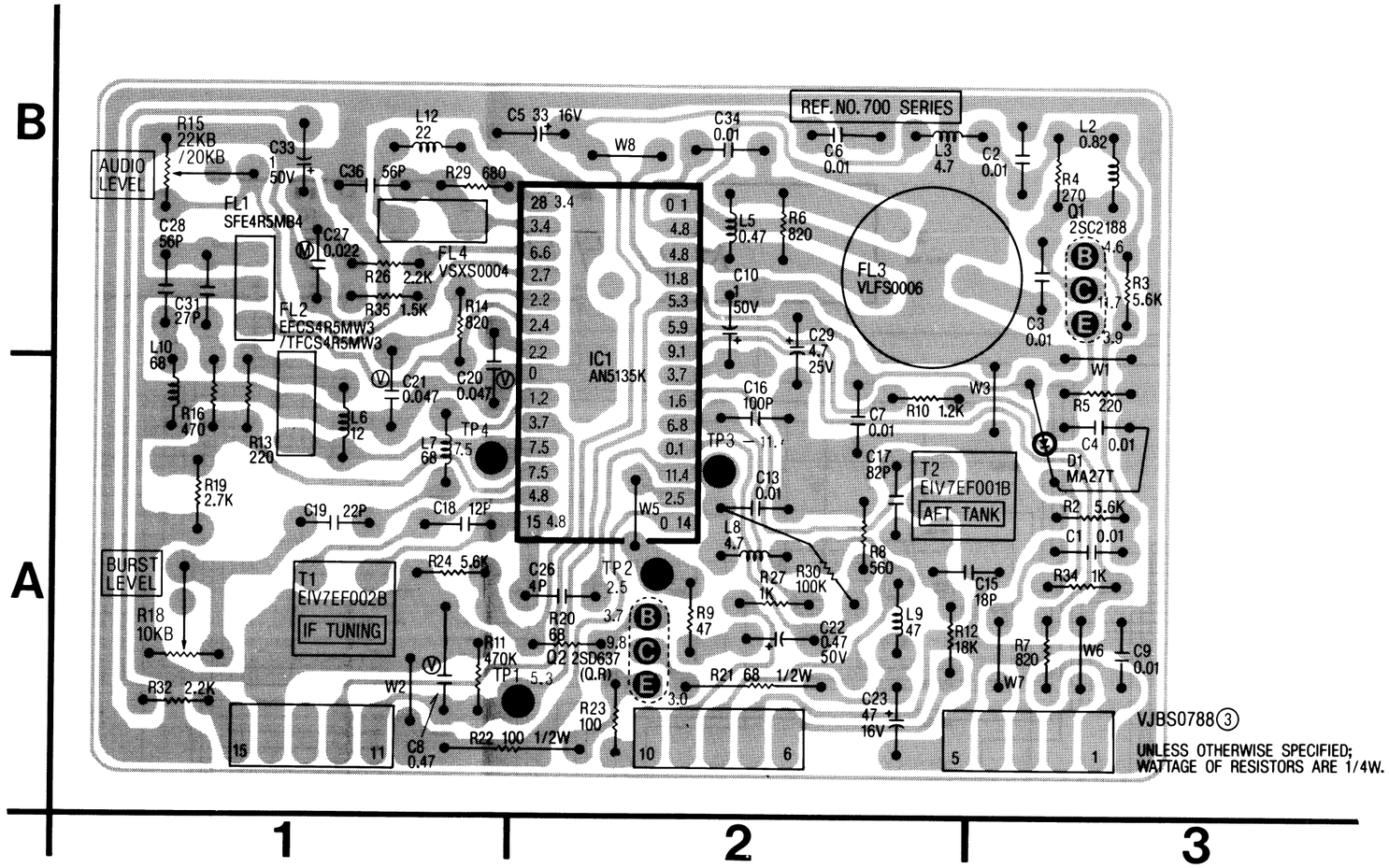
TV DEMODULATOR UNIT





PIN OF TV DEMODU. C.B.A. Ⓢ STOP.
0.1V/1msec. div.

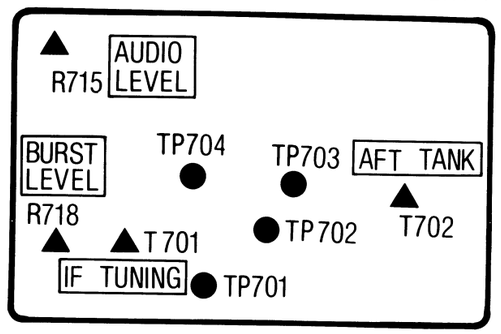
PIN OF TV DEMODU. C.B.A. Ⓢ STOP.
0.2V/20Usec. div.



OTHERWISE SPECIFIED;
OF RESISTORS ARE 1/4W.

NOTE : REF. NO. ON. C.B.A. IS PRINTED AS FOLLOWS.
EXAMPLE: C.B.A.···R2, REF.NO. 700 SERIES
SCHEMATIC DIAGRAM···R702
(R702 IS ABBREVIATED TO R2)

LOCATIONS OF TEST POINTS & ADJUSTMENT POINTS



JUMPER (TO SIGNAL PROCESS)

1	UHF/VHF AGC
2	RF AGC
3	GND
4	IF
5	GND
6	AFT SW
7	GND
8	+12V
9	AFT
10	VIDEO
11	
12	+12V
13	
14	GND
15	AUDIO

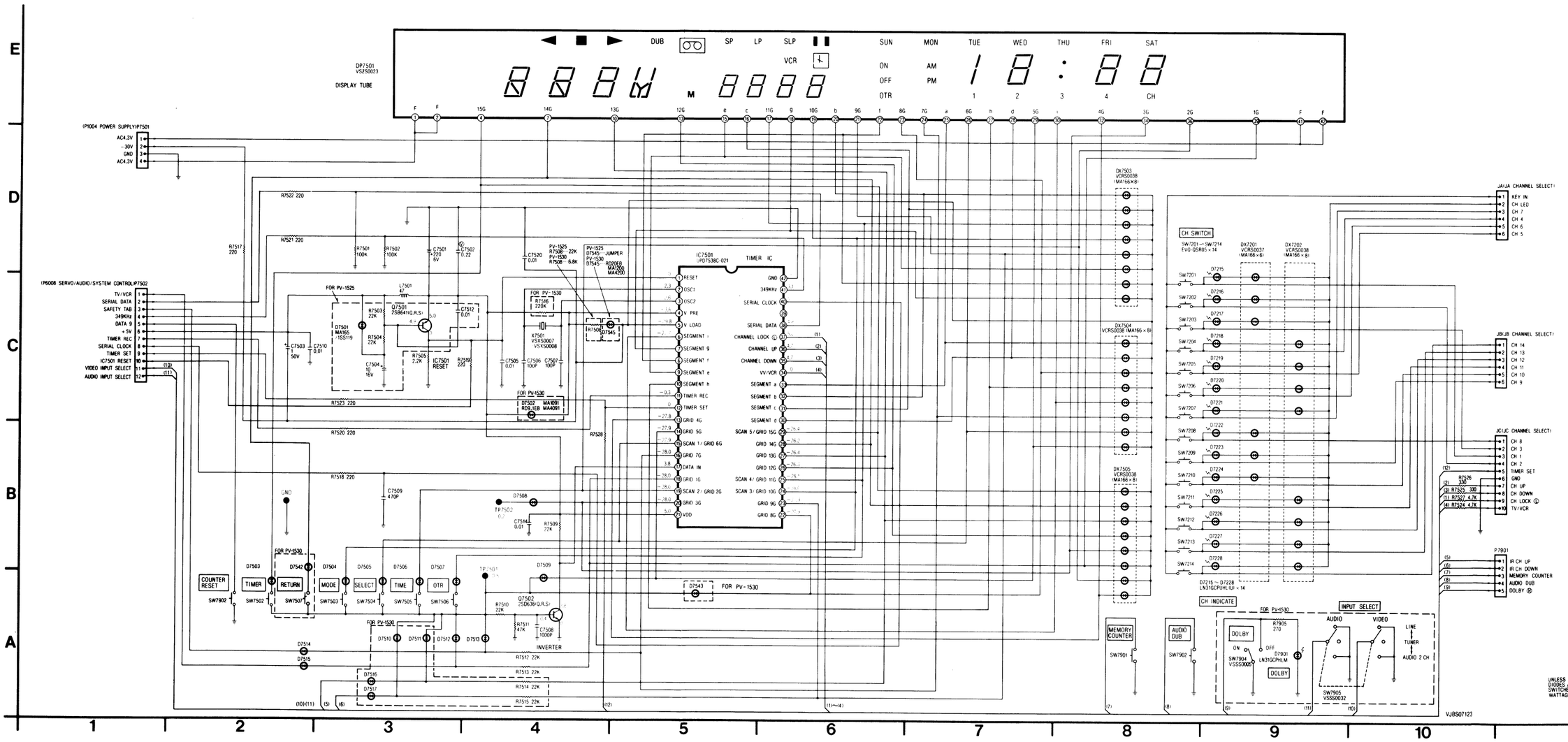
PROGRAMMABLE TIMER SCHEMATIC DIAGRAM

VOLTAGE MEASUREMENT: COLOR BAR SIGNAL
IN STOP MODE

CALLOUTS NEXT TO WIRING PLUGS INDICATE
CONNECTIONS TO OTHER SCHEMATIC DIAGRAM.

IC7501 KEY N

SCAN OUT	
PIN NO.	
15 (SCAN 1)	
19 (SCAN 2)	
24 (SCAN 3)	
25 (SCAN 4)	
29 (SCAN 5)	



UNLESS OTHERWISE SPECIFIED:
DIODES ARE MA166,
SWITCHES ARE EVQ-QJ104K AND
WATTAGE OF RESISTORS ARE 1/4W.

NOTE: REF. NO. ON C.B.A. IS PRINTED AS FOLLOWS.
EXAMPLE: C.B.A.···R2, REF. NO. 7200 SERIES
SCHEMATIC DIAGRAM···R7202
(R7202 IS ABBREVIATED TO R2)

NOTE : REF. NO. ON. C.B.A. IS PRINTED AS FOLLOWS.
EXAMPLE: C.B.A.···R2, REF.NO. 7900 SERIES
SCHEMATIC DIAGRAM···R7902
(R7902 IS ABBREVIATED TO R2)

CALLOUTS NEXT TO WIRING PLUGS INDICATE CONNECTIONS TO OTHER SCHEMATIC DIAGRAM.

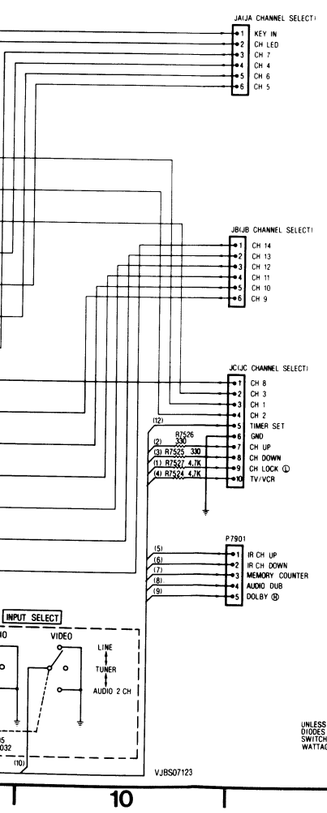
PROGRAMMABLE TIMER C.B.A. VEPS07123A1 (PV-1525)
VEPS07123E1 (PV-1530)

VOLTAGE MEASUREMENT: COLOR BAR SIGNAL IN STOP MODE

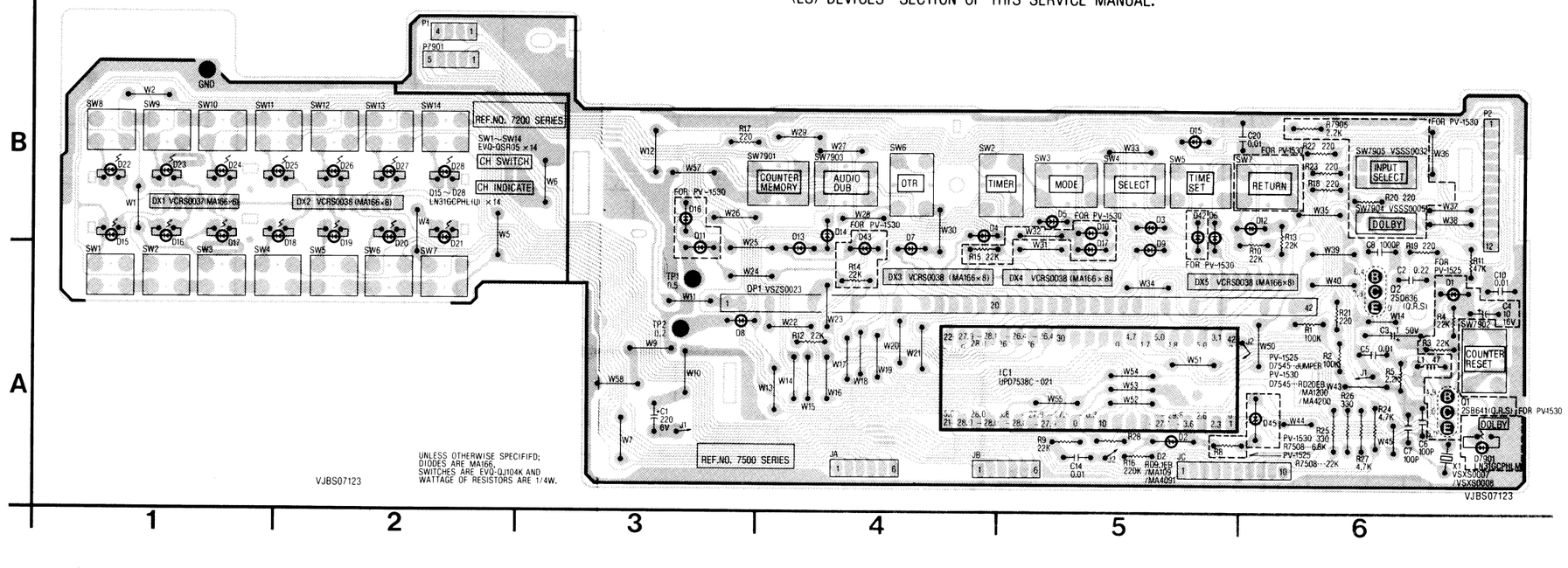
SPECIAL NOTE:
ALL INTEGRATED CIRCUITS AND MANY OTHER SEMICONDUCTOR DEVICES ARE ELECTROSTATICALLY SENSITIVE AND THEREFORE REQUIRE THE SPECIAL HANDLING TECHNIQUES DESCRIBED UNDER THE "ELECTROSTATICALLY SENSITIVE (ES) DEVICES" SECTION OF THIS SERVICE MANUAL.

IC7501 KEY MATRIX UPC7538C

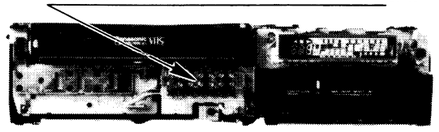
SCAN OUT	DATA IN
PIN NO.	17 (DATA IN)
15 (SCAN 1)	SELECT
19 (SCAN 2)	TIME SET
24 (SCAN 3)	MODE
25 (SCAN 4)	OTR
29 (SCAN 5)	TIMER



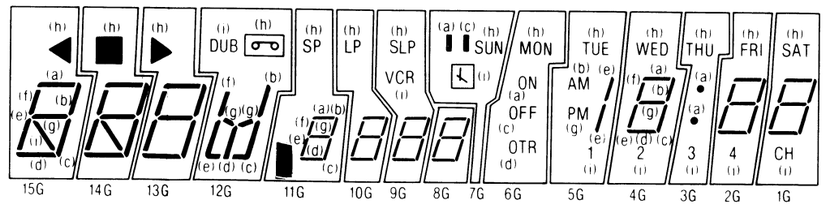
LOWS.
S



PROGRAMMABLE TIMER C.B.A.



DP 7501 DISPLAY TUBE CONNECTION



PIN NO.	CONNECTION
1	FILAMENT
2	FILAMENT
3	——
4	GRID 15G
5	——
6	——
7	GRID 14G
8	——
9	——
10	GRID 13G

PIN NO.	CONNECTION
11	——
12	——
13	GRID 12G
14	——
15	SEGMENT e
16	SEGMENT c
17	GRID 11G
18	SEGMENT g
19	GRID 10G
20	SEGMENT b

PIN NO.	CONNECTION
21	GRID 9G
22	SEGMENT f
23	GRID 8G
24	GRID 7G
25	SEGMENT a
26	GRID 6G
27	SEGMENT h
28	SEGMENT d
29	GRID 5G
30	——

PIN NO.	CONNECTION
31	——
32	GRID 4G
33	——
34	GRID 3G
35	——
36	GRID 2G
37	——
38	——
39	GRID 1G
40	——
41	FILAMENT
42	FILAMENT

JA

1	KEY IN
2	CH LED
3	CH 7
4	CH 4
5	CH 6
6	CH 5

JB

1	CH 14
2	CH 13
3	CH 12
4	CH 11
5	CH 10
6	CH 9

JC

1	CH 8
2	CH 3
3	CH 1
4	CH 2
5	TIMER SET
6	GND
7	CH UP
8	CH DOWN
9	CH LOCK Ⓛ
10	TV/VCR

P7501

1	AC4.3V
2	−30V
3	GND
4	AC4.3V

P7502

1	TV/VCR
2	SERIAL DATA
3	SAFETY TAB
4	349KHz
5	DATA 9
6	+5V
7	TIMER REC
8	SERIAL CLOCK
9	TIMER SET
10	IC7501 RESET
11	VIDEO INPUT SELECT
12	AUDIO INPUT SELECT

P7901

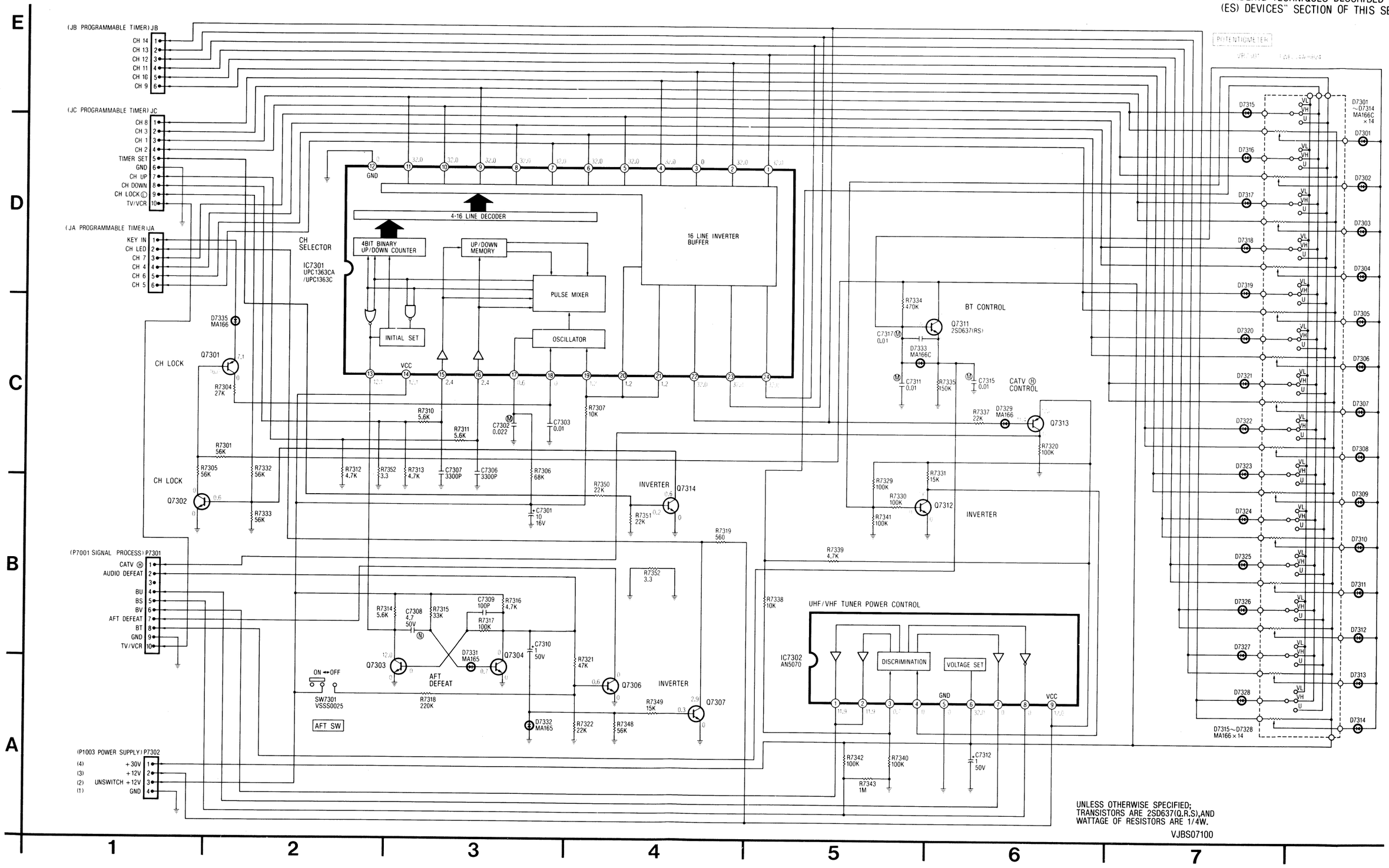
1	IR CH UP
2	IR CH DOWN
3	MEMORY COUNTER
4	AUDIO DUB
5	DOLBY Ⓗ

CHANNEL SELECT SCHEMATIC DIAGRAM

VOLTAGE MEASUREMENT: COLOR BAR SIGNAL IN STOP MODE.

CALLOUTS NEXT TO WIRING PLUGS INDICATE CONNECTIONS TO OTHER SCHEMATIC DIAGRAM.

SPECIAL NOTE:
ALL INTEGRATED CIRCUITS AND MANY OTHER SE
ELECTROSTATICALLY SENSITIVE AND THEREFORE
HANDLING TECHNIQUES DESCRIBED UNDER THE "E
(ES) DEVICES" SECTION OF THIS SERVICE MANUA



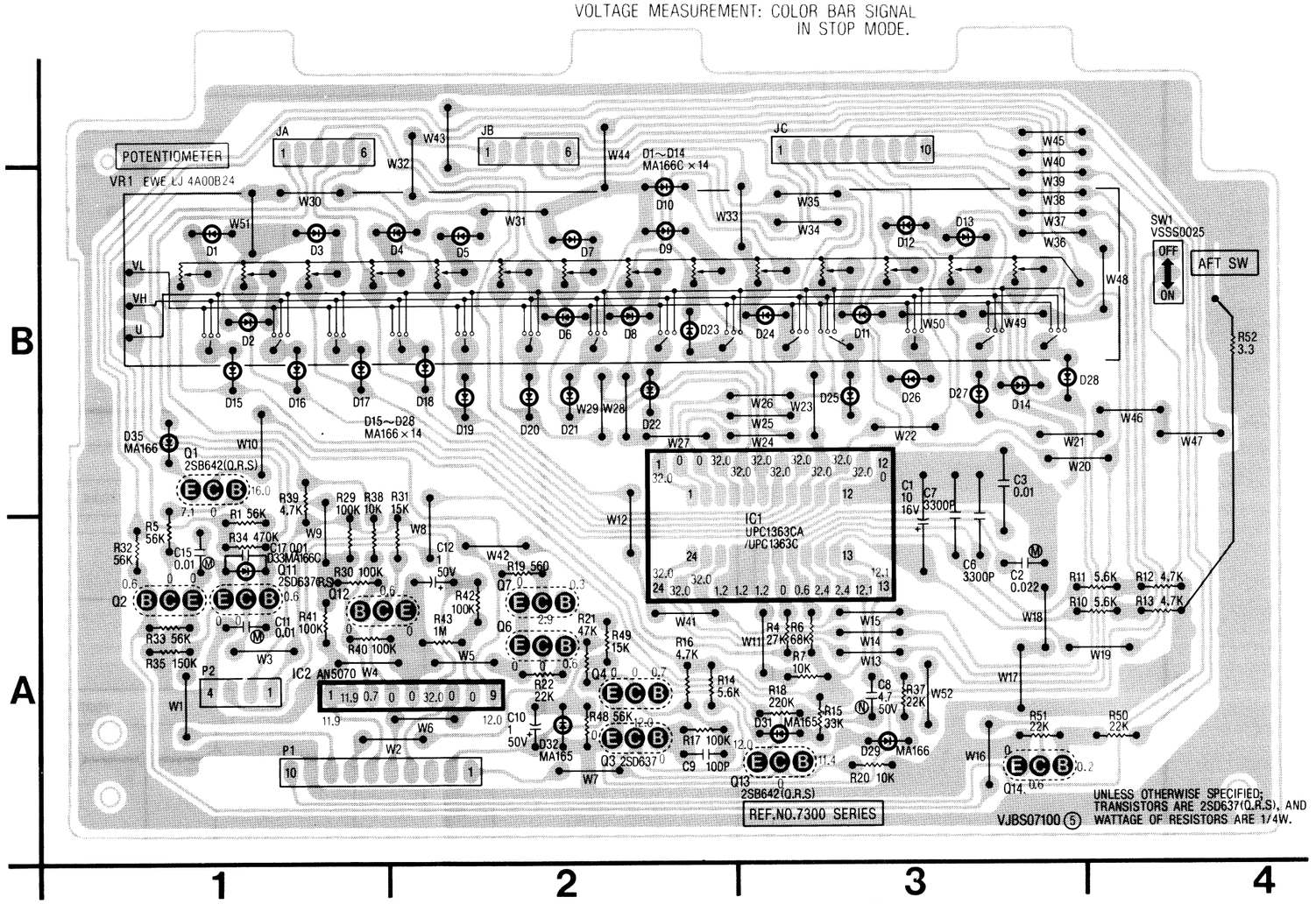
UNLESS OTHERWISE SPECIFIED;
TRANSISTORS ARE 2SD637(Q.R.S),AND
WATTAGE OF RESISTORS ARE 1/4W.

VJBS07100

NOTE: REF. N
EXAM
S
(R730

SPECIAL NOTE:
ALL INTEGRATED CIRCUITS AND MANY OTHER SEMICONDUCTOR DEVICES ARE ELECTROSTATICALLY SENSITIVE AND THEREFORE REQUIRE THE SPECIAL HANDLING TECHNIQUES DESCRIBED UNDER THE "ELECTROSTATICALLY SENSITIVE (ES) DEVICES" SECTION OF THIS SERVICE MANUAL.

CHANNEL SELECT C.B.A. VEPS07100C1



CHANNEL SELECT SCHEMATIC DIAGRAM	
Q7301	2-C
Q7302	1-B
Q7303	3-A
Q7304	3-A
Q7306	4-A
Q7307	4-A
Q7311	6-C
Q7312	5-B
Q7313	6-C
Q7314	4-B

CHANNEL SELECT C.B.A.	
Q 1	1-B
Q 2	1-A
Q 3	2-A
Q 4	2-A
Q 6	2-A
Q 7	2-A
Q11	1-A
Q12	1-A
Q13	3-A
Q14	3-A

NOTE: REF. NO. ON C.B.A. IS PRINTED AS FOLLOWS.
EXAMPLE: C.B.A.···R2, REF. NO. 7300 SERIES
SCHEMATIC DIAGRAM···R7302
(R7302 IS ABBREVIATED TO R2)

P7301

1	CATV Ⓗ
2	AUDIO DEFEAT
3	
4	BU
5	BS
6	BV
7	AFT DEFEAT
8	BT
9	GND
10	TV/VCR

P7302

1	+30V
2	+12V
3	UNSWITCH +12V
4	GND

JA

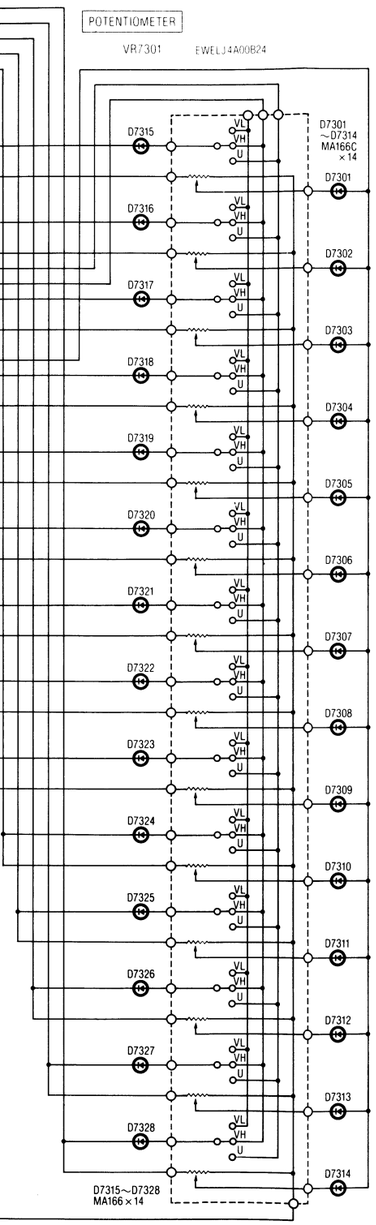
1	KEY IN
2	CH LED
3	CH 7
4	CH 4
5	CH 6
6	CH 5

JB

1	CH 14
2	CH 13
3	CH 12
4	CH 11
5	CH 10
6	CH 9

JC

1	CH 8
2	CH 3
3	CH 1
4	CH 2
5	TIMER SET
6	GND
7	CH UP
8	CH DOWN
9	CH LOCK Ⓛ
10	TV/VCR

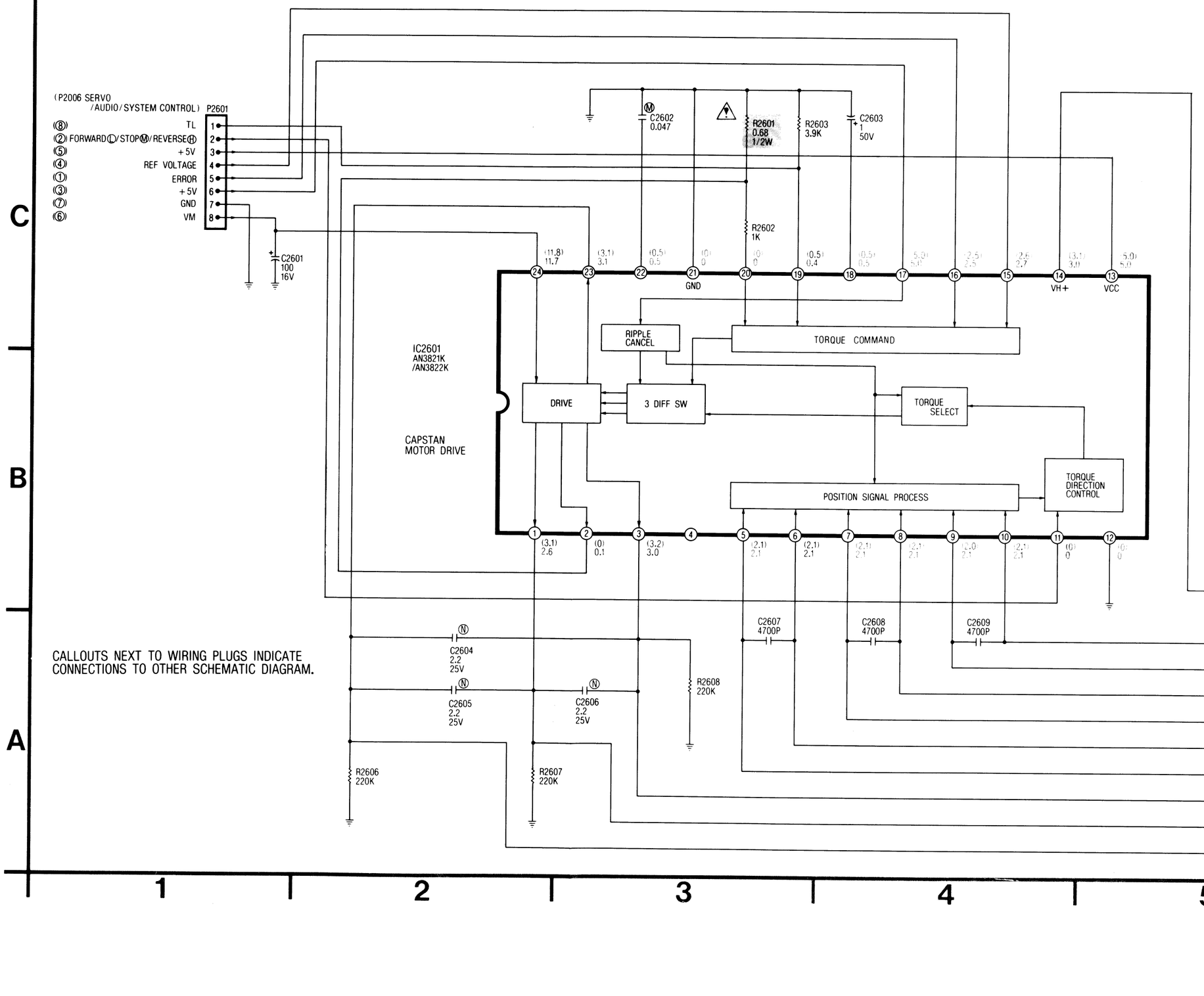


CAPSTAN MOTOR DRIVE SCHEMATIC DIAGRAM

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.

VOLTAGE MEASUREMENT:
COLOR BAR SIGNAL IN SP REC MODE WITH BRACKET.
COLOR BAR SIGNAL IN SP PLAY MODE WITHOUT BRAC

SPECIAL NOTE:
ALL INTEGRATED CIRCUITS AND MANY OTHER SEMICON
ELECTROSTATICALLY SENSITIVE AND THEREFORE REQUI
HANDLING TECHNIQUES DESCRIBED UNDER THE "ELECTR
(ES) DEVICES" SECTION OF THIS SERVICE MANUAL.



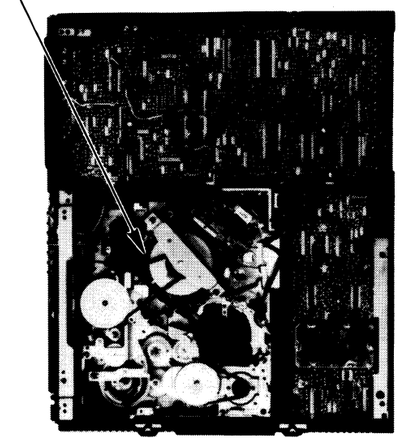
CALLOUTS NEXT TO WIRING PLUGS INDICATE CONNECTIONS TO OTHER SCHEMATIC DIAGRAM.

UNLESS OTHERWISE SPECIFIED;
WATTAGE OF RESISTORS ARE 1/4W.

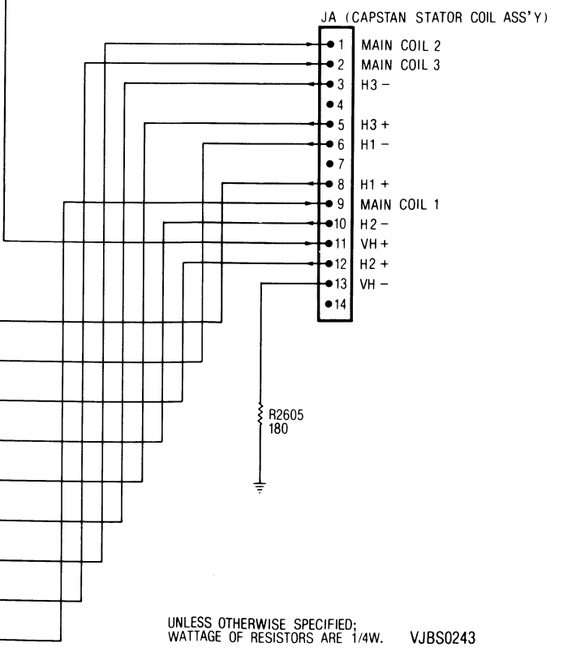
VJBS0243

VOLTAGE MEASUREMENT:
COLOR BAR SIGNAL IN SP REC MODE WITH BRACKET.
COLOR BAR SIGNAL IN SP PLAY MODE WITHOUT BRACKET.

CAPSTAN MOTOR DRIVE C.B.A.



SPECIAL NOTE:
ALL INTEGRATED CIRCUITS AND MANY OTHER SEMICONDUCTOR DEVICES ARE ELECTROSTATICALLY SENSITIVE AND THEREFORE REQUIRE THE SPECIAL HANDLING TECHNIQUES DESCRIBED UNDER THE "ELECTROSTATICALLY SENSITIVE (ES) DEVICES" SECTION OF THIS SERVICE MANUAL.



UNLESS OTHERWISE SPECIFIED;
WATTAGE OF RESISTORS ARE 1/4W. VJBS0243

5 6

VOLTAGE MEASUREMENT:
1. CUE, REVIEW, FRAME ADVANCE.
COLOR BAR SIGNAL IN SLP MODE.
2. OTHERS
COLOR BAR SIGNAL IN SP MODE.

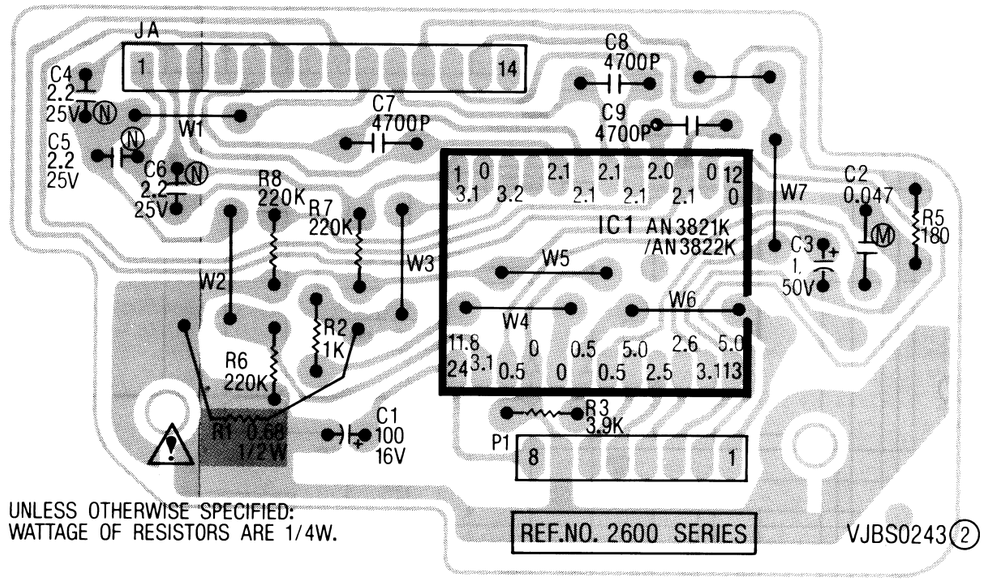
★ : UNMEASURABLE OR UNNECESSARY TO MEASURE.

CAPSTAN MOTOR DRIVE C.B.A. VEPS0243C1

VOLTAGE MEASUREMENT: COLOR BAR SIGNAL IN SP REC MODE.

IMPORTANT SEFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.

A



UNLESS OTHERWISE SPECIFIED:
WATTAGE OF RESISTORS ARE 1/4W.

1 2

REF.NO. / MODE	IC2601																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
STOP	2.0	0	2.0	★	2.0	2.1	2.1	2.0	2.0	2.1	2.1	0	4.9	3.0	2.6	2.2	5.0	0.6	0.5	0
REC	3.1	0	3.2	★	2.1	2.1	2.1	2.1	2.0	2.1	0	0	5.0	3.1	2.6	2.5	5.0	0.5	0.5	0
PLAY	2.6	0.1	3.0	★	2.1	2.1	2.1	2.1	2.1	2.1	0	0	5.0	3.0	2.7	2.5	5.0	0.5	0.4	0
CUE	4.8	0.1	4.8	★	2.1	2.1	2.1	2.1	2.1	2.1	0	0	4.9	3.0	2.6	2.5	5.0	0.5	0.5	0.1
REV	4.7	0.1	4.8	★	2.1	2.1	2.1	2.1	2.1	2.1	4.7	0	5.0	3.0	2.6	2.4	5.0	0.5	0.4	0.1
F.ADV.	2.3	0	2.2	★	2.0	2.1	2.1	2.1	2.1	2.1	1.9	0	4.9	3.0	2.6	2.7	4.9	0.5	0.4	0
SLOW(1/4)	2.3	0	2.2	★	2.1	2.1	2.1	2.1	2.1	2.1	1.9	0	5.0	3.0	2.6	2.0	5.0	0.5	0.5	0

REF.NO. / MODE	IC2601			
	21	22	23	24
STOP	0	0	2.0	11.8
REC	0	0.5	3.1	11.8
PLAY	0	0.5	3.1	11.7
CUE	0	0.5	4.8	11.8
REV	0	0.5	4.9	11.7
F.ADV.	0	0.2	2.0	11.8
SLOW(1/4)	0	0.1	2.2	11.8

RF CONVERTER SCHEMATIC DIAGRAM

IMPORTANT NOTICE:
IF UNIT PARTS ARE REPLACED INDIVIDUALLY, THE FCC SPECIFICATIONS WILL NOT BE SATISFIED.
DURING SERVICING, PLEASE REPLACE AS A UNIT.

SPECIAL NOTE:
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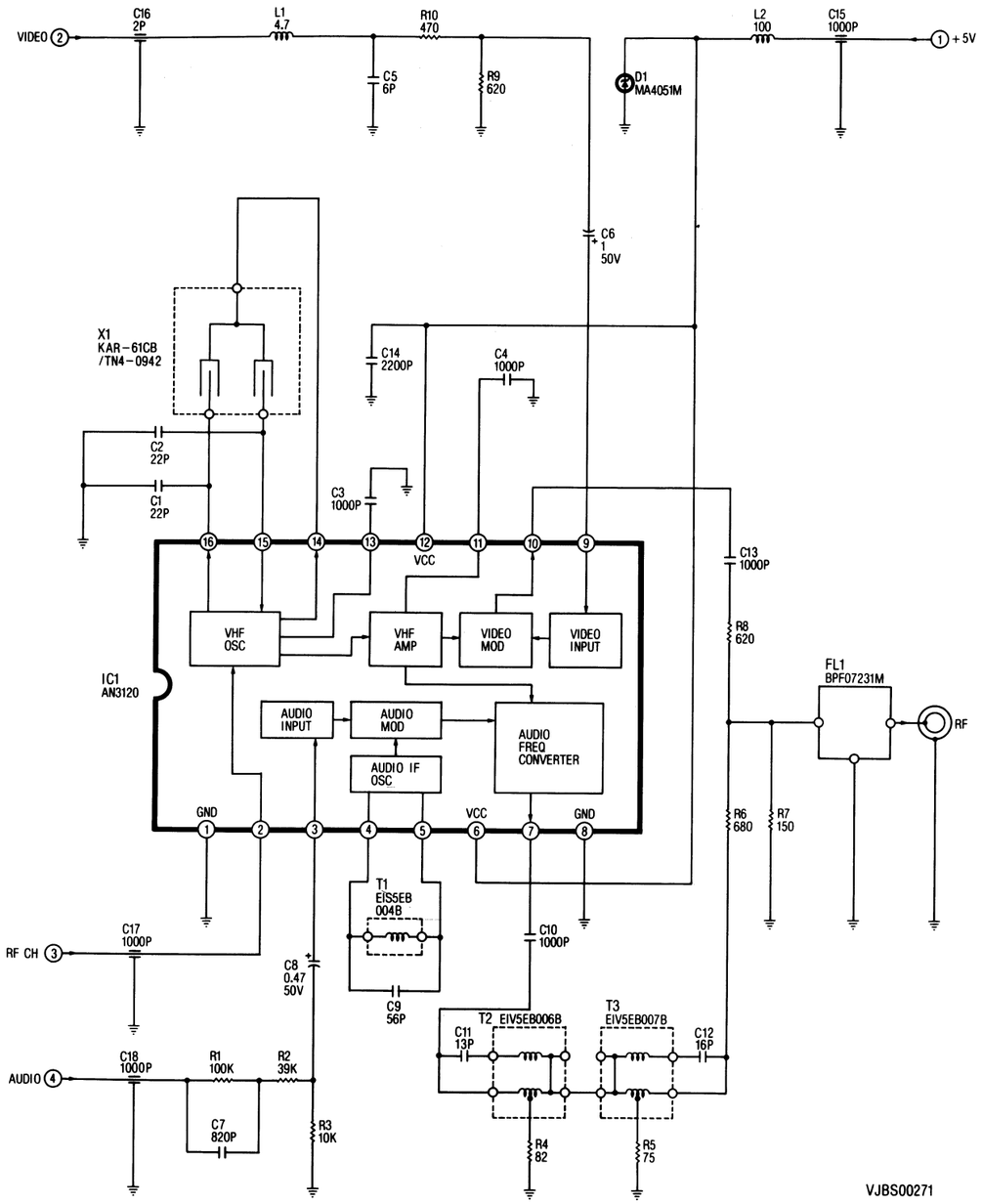
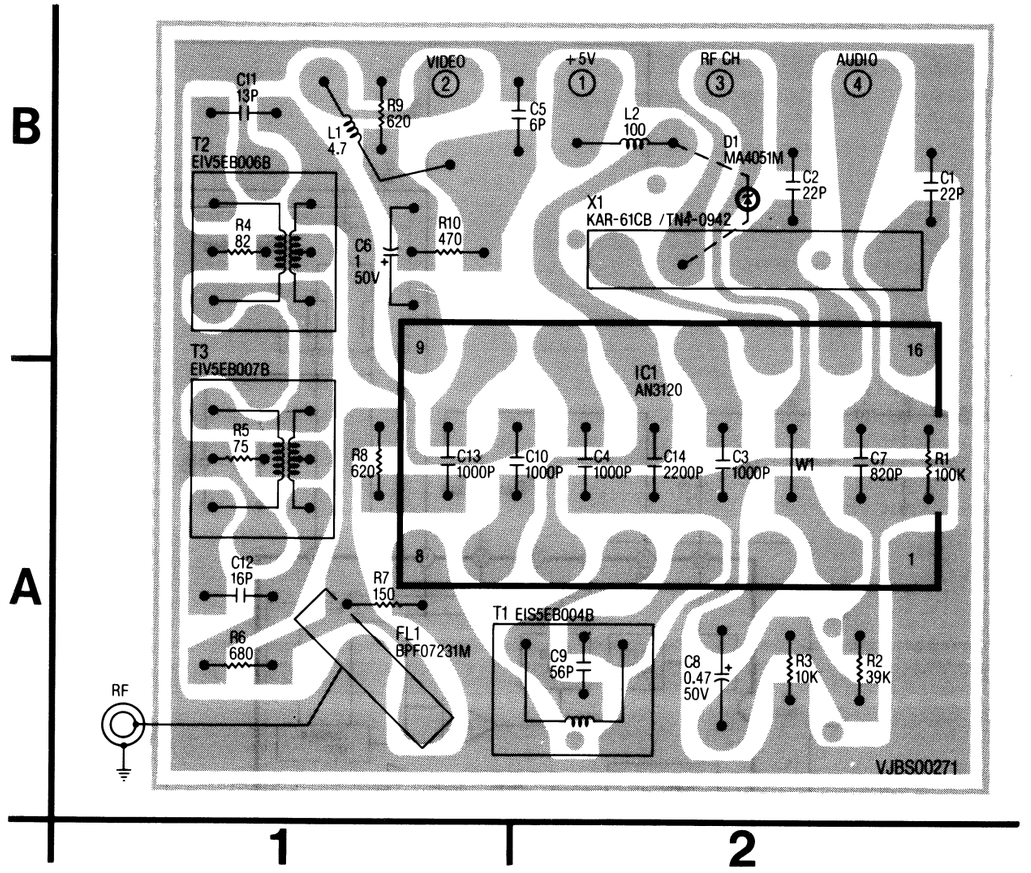
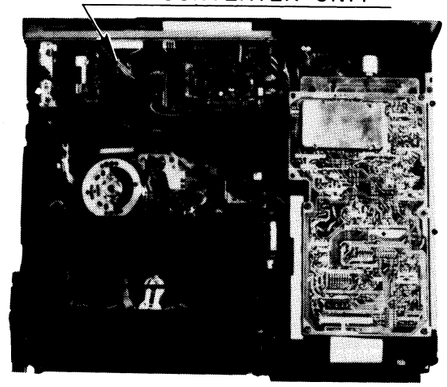


RF CONVERTER UNIT (VEQS0252)

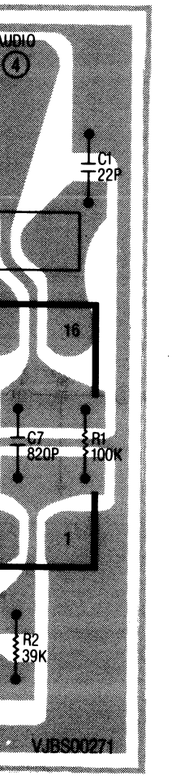
IMPORTANT NOTICE:
IF UNIT PARTS ARE REPLACED INDIVIDUALLY, THE FCC SPECIFICATIONS WILL NOT BE SATISFIED.
DURING SERVICING, PLEASE REPLACE AS A UNIT.



RF CONVERTER UNIT



LLY, THE FCC
A UNIT.



RF CONVERTER SCHEMATIC DIAGRAM

IMPORTANT NOTICE:
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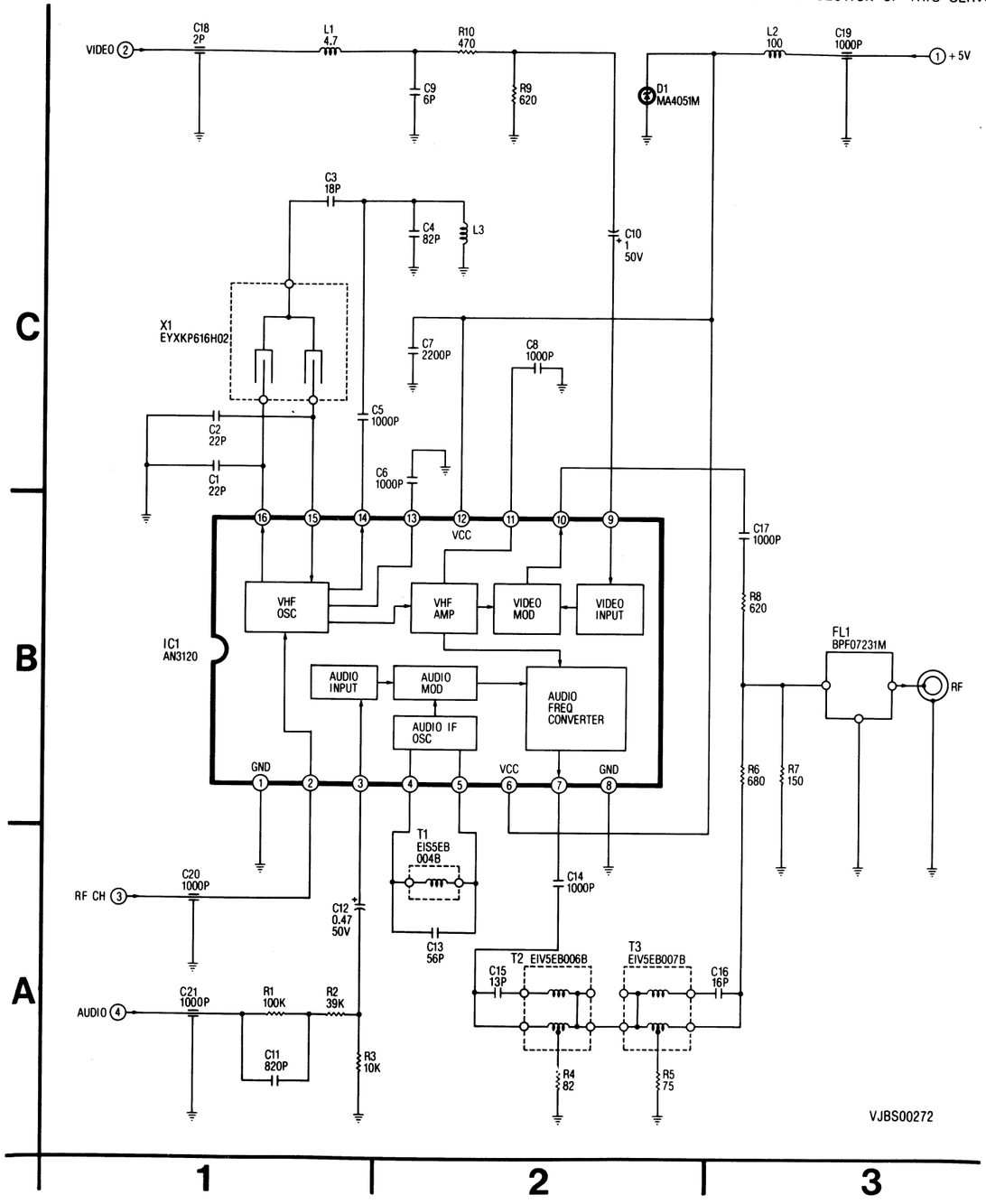
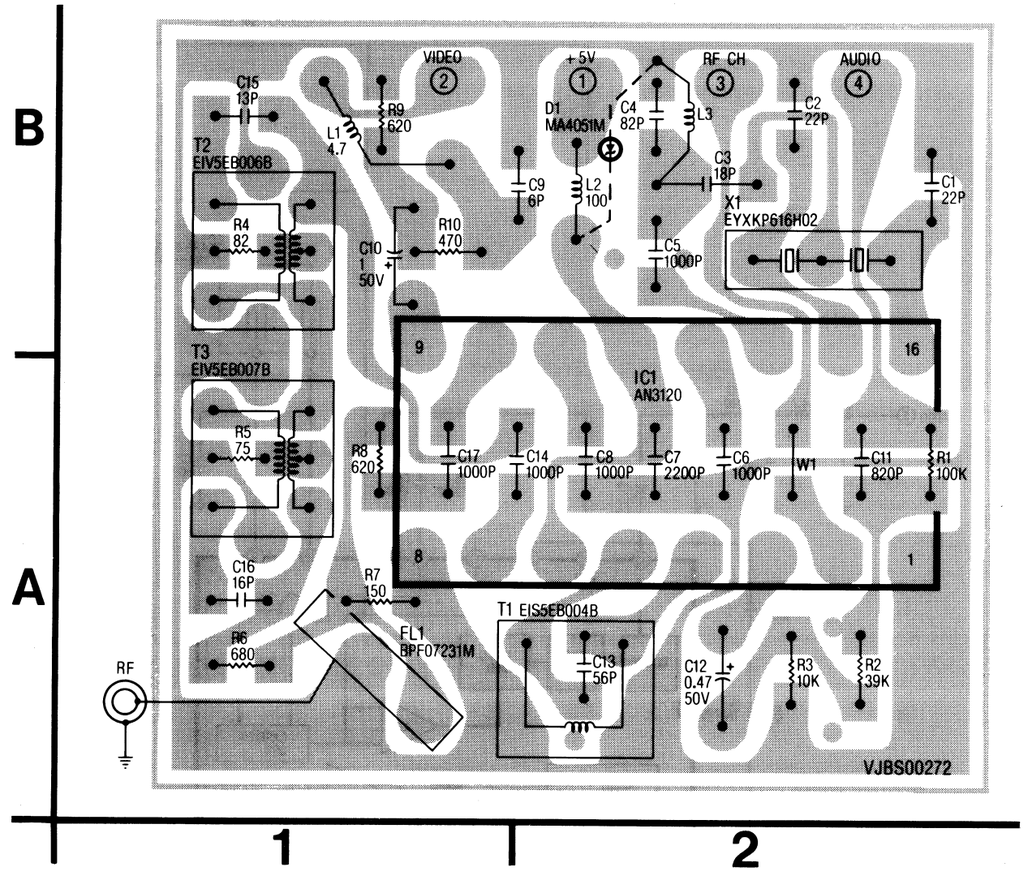
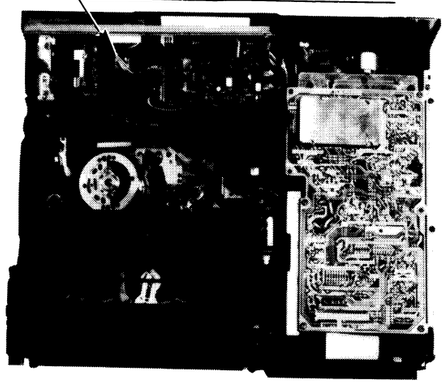


RF CONVERTER UNIT (VEQS0253)

IMPORTANT NOTICE:
IF UNIT PARTS ARE REPLACED INDIVIDUALLY, THE FCC SPECIFICATIONS WILL NOT BE SATISFIED.
DURING SERVICING, PLEASE REPLACE AS A UNIT.



RF CONVERTER UNIT



RF CONVERTER SCHEMATIC DIAGRAM

IMPORTANT NOTICE:
IF UNIT PARTS ARE REPLACED INDIVIDUALLY, THE FCC SPECIFICATIONS WILL NOT BE SATISFIED.
DURING SERVICING. PLEASE REPLACE AS A UNIT.

SPECIAL NOTE:
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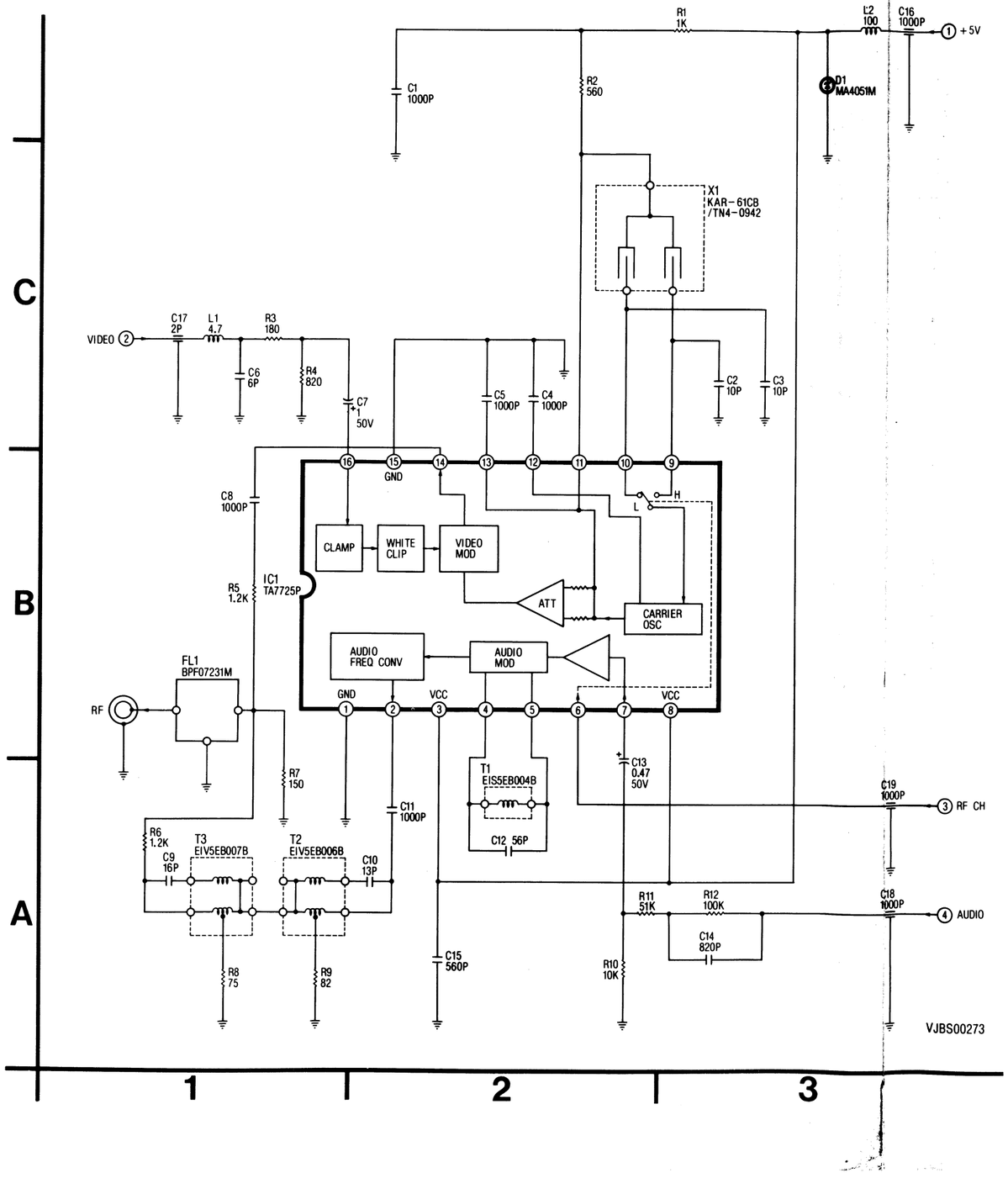
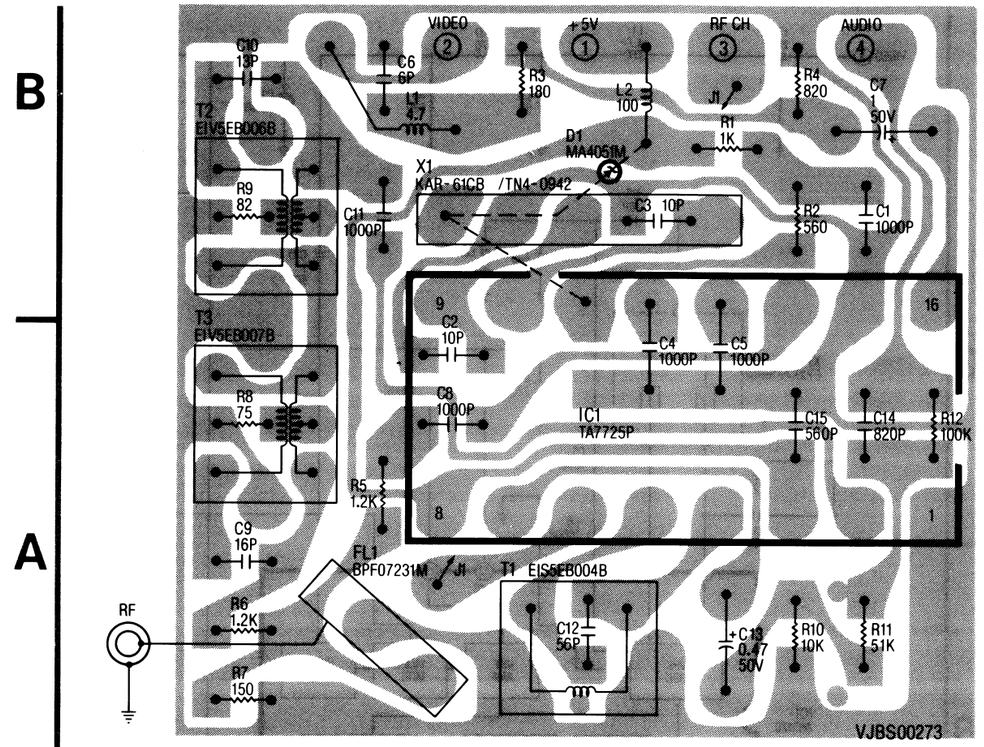
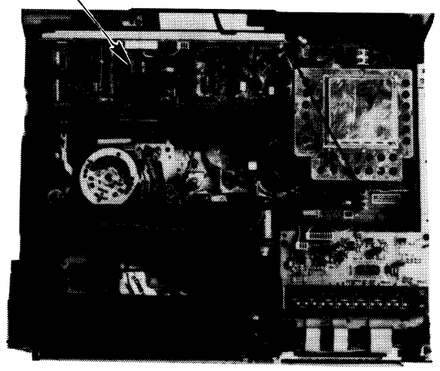


RF CONVERTER UNIT (VEQS0254)

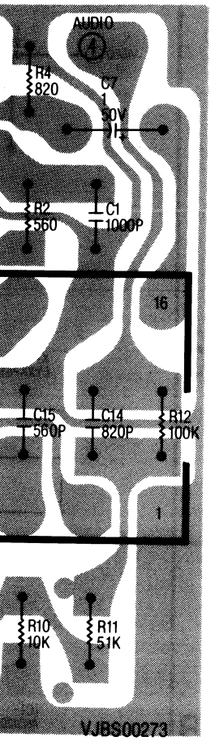
IMPORTANT NOTICE:
IF UNIT PARTS ARE REPLACED INDIVIDUALLY, THE FCC SPECIFICATIONS WILL NOT BE SATISFIED.
DURING SERVICING, PLEASE REPLACE AS A UNIT.



RF CONVERTER UNIT



NDIVIDUALLY, THE FCC
ATISFIED.
ACE AS A UNIT.



RF CONVERTER SCHEMATIC DIAGRAM

IMPORTANT NOTICE:
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DURING SERVICING, PLEASE REPLACE AS A UNIT.

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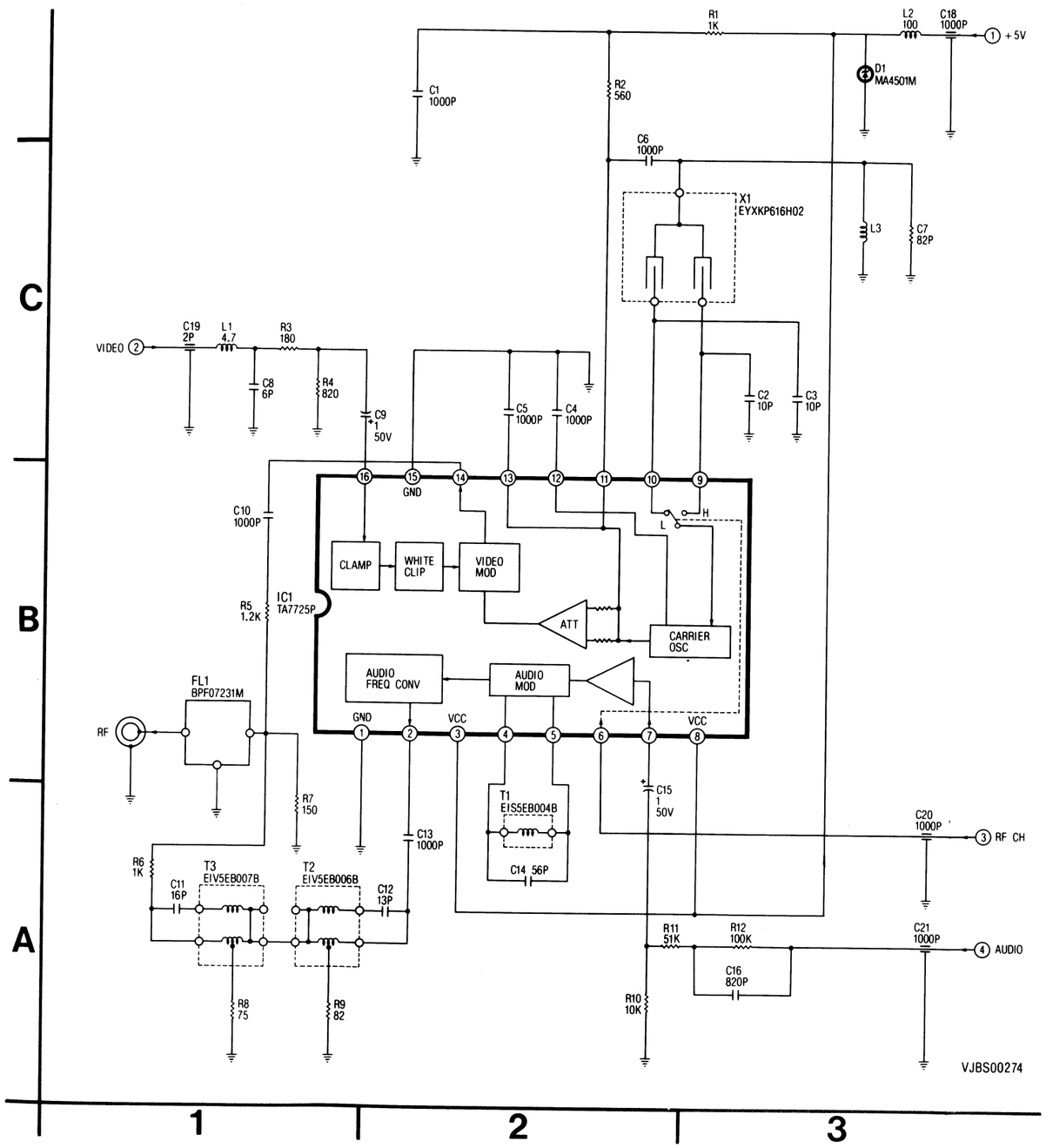
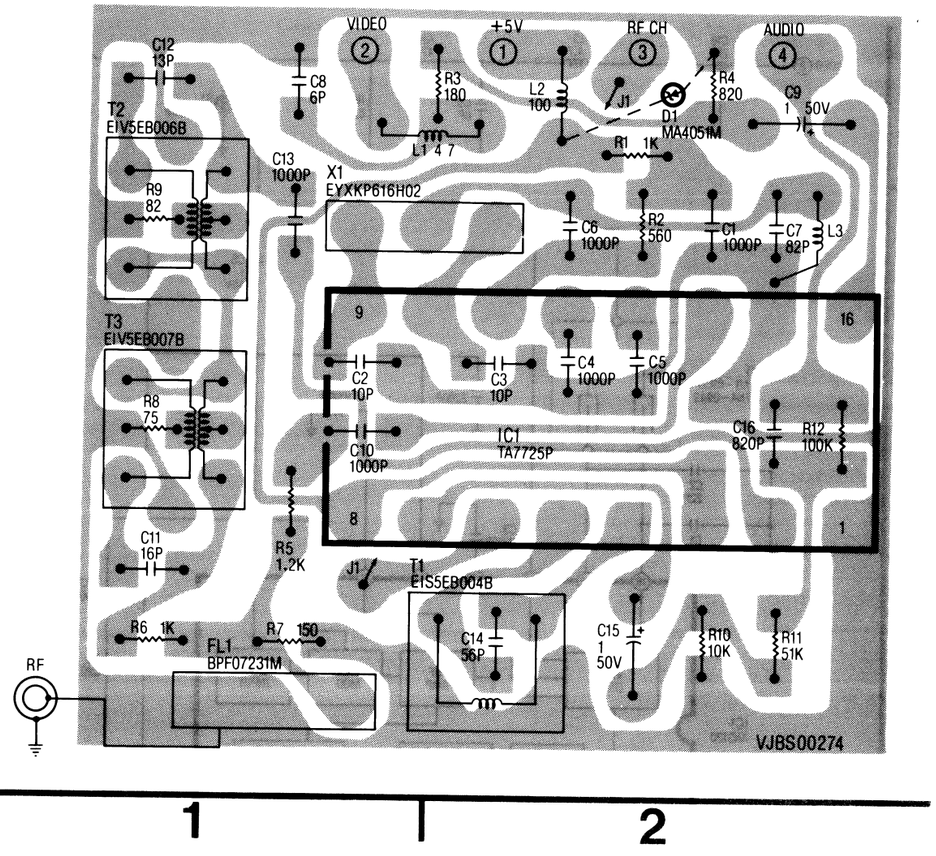
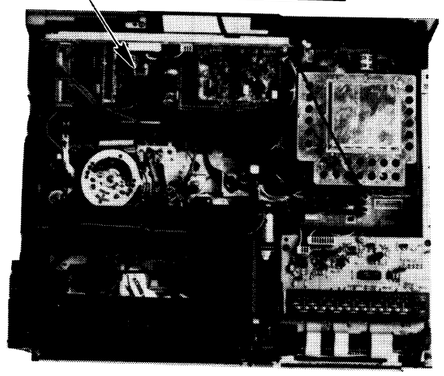


RF CONVERTER UNIT (VEQS0255)

IMPORTANT NOTICE:
IF UNIT PARTS ARE REPLACED INDIVIDUALLY, THE FCC SPECIFICATIONS WILL NOT BE SATISFIED.
DURING SERVICING, PLEASE REPLACE AS A UNIT.



RF CONVERTER UNIT



UHF/VHF TUNER SCHEMATIC DIAGRAM TNV56751F2R

IMPORTANT NOTICE:
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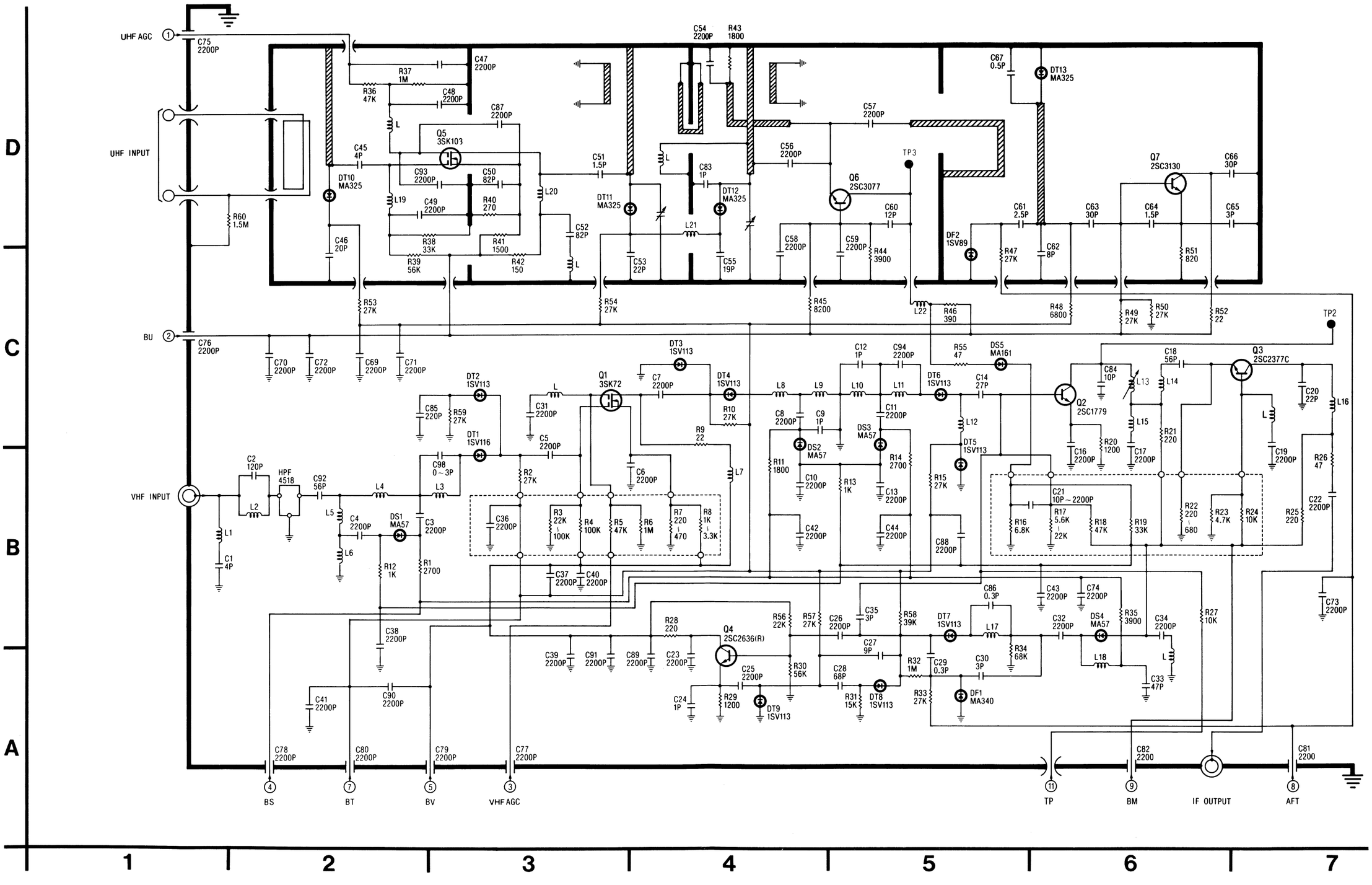
DURING SERVICING, PLEASE REPLACE AS A UNIT.



UHF/VHF

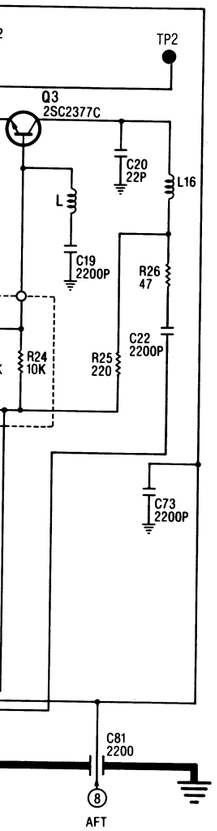
UHF SCHE
Q1
Q2
Q3
Q4
Q5
Q6
Q7

UHF
Q1
Q2
Q3
Q4
Q5
Q6
Q7

SPECIAL NOTE:
ALL INTEGRATED
ELECTROSTATICAL
HANDLING TECHN
(ES) DEVICES" SE

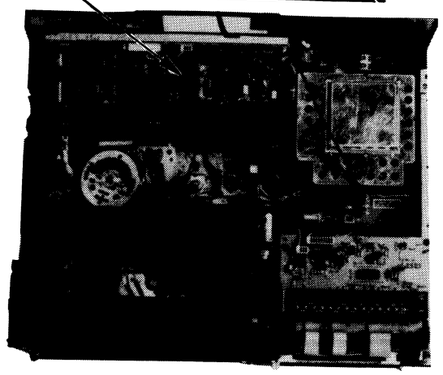
Y, THE FCC

UNIT.



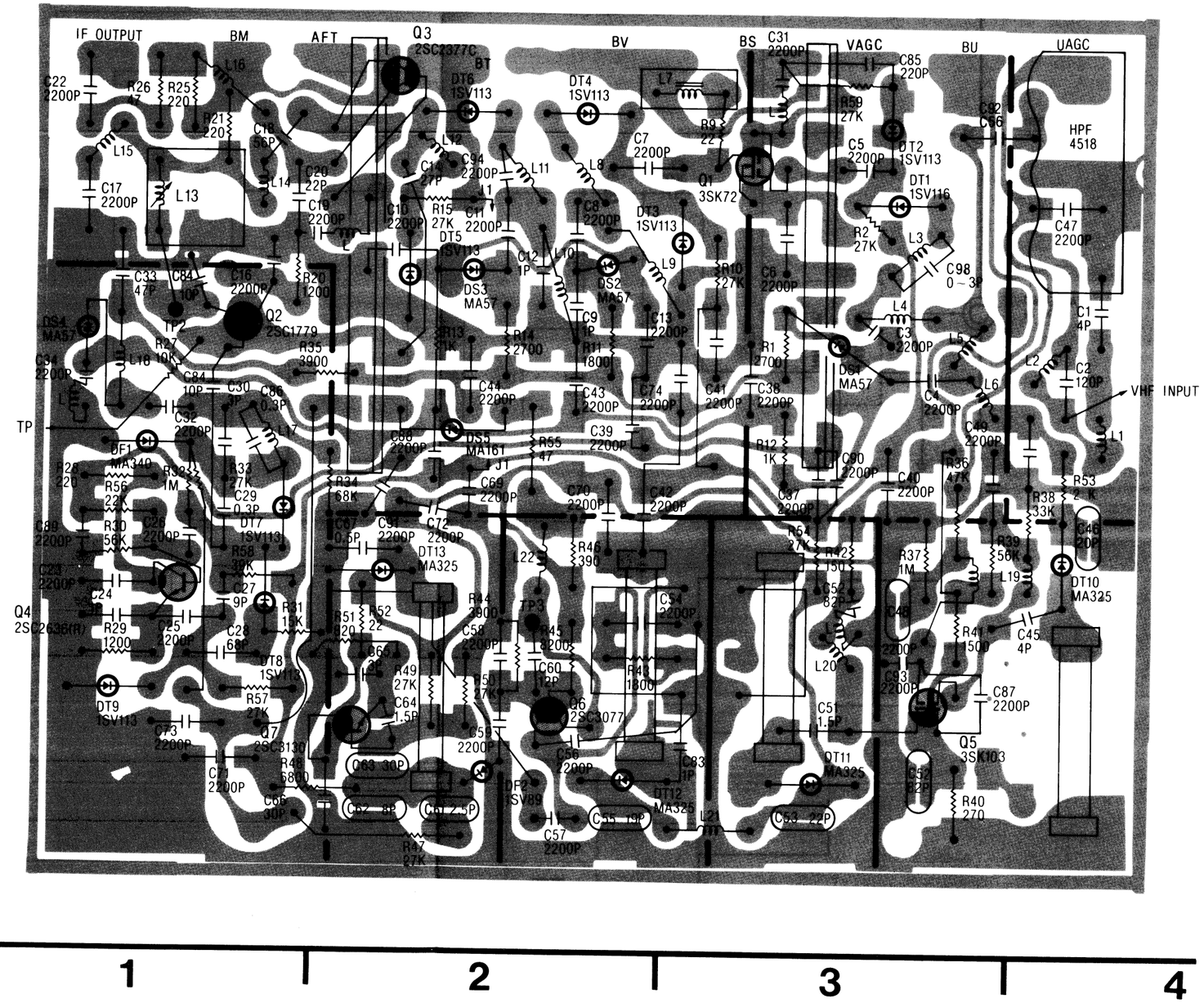
7

UHF/VHF TUNER UNIT



UHF/VHF TUNER UNIT TNV56751F2R

IMPORTANT NOTICE:
IF UNIT PARTS ARE REPLACED INDIVIDUALLY, THE FCC SPECIFICATIONS WILL NOT BE SATISFIED.
DURING SERVICING, PLEASE REPLACE AS A UNIT.



UHF/VHF TUNER SCHEMATIC DIAGRAM	
Q1	3-C
Q2	6-C
Q3	7-C
Q4	4-A
Q5	3-D
Q6	5-D
Q7	6-D

UHF/VHF TUNER UNIT	
Q1	3-C
Q2	1-B
Q3	2-C
Q4	1-B
Q5	3-A
Q6	2-A
Q7	2-A

C

B

A

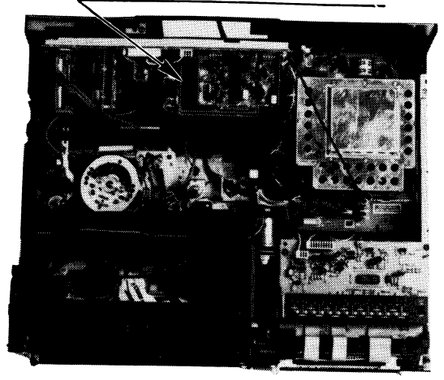
1 2 3 4

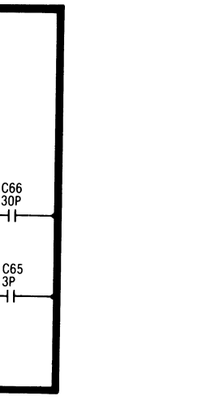
SPECIAL NOTE:
ALL INTEGRATED CIRCUITS AND MANY OTHER SEMICONDUCTOR DEVICES ARE ELECTROSTATICALLY SENSITIVE AND THEREFORE REQUIRE THE SPECIAL HANDLING TECHNIQUES DESCRIBED UNDER THE "ELECTROSTATICALLY SENSITIVE (ES) DEVICES" SECTION OF THIS SERVICE MANUAL.

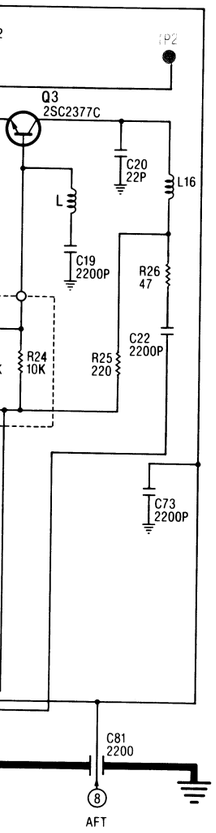
Y, THE FCC

UNIT.

UHF/VHF TUNER UNIT







UHF/VHF TUNER SCHEMATIC DIAGRAM	
Q1	3-C
Q2	6-C
Q3	7-C
Q4	4-A
Q5	3-D
Q6	5-D
Q7	6-D

UHF/VHF TUNER UNIT	
Q1	3-C
Q2	1-B
Q3	2-C
Q4	1-B
Q5	3-A
Q6	2-A
Q7	2-A

UHF/VHF TUNER UNIT TNV56751F2R

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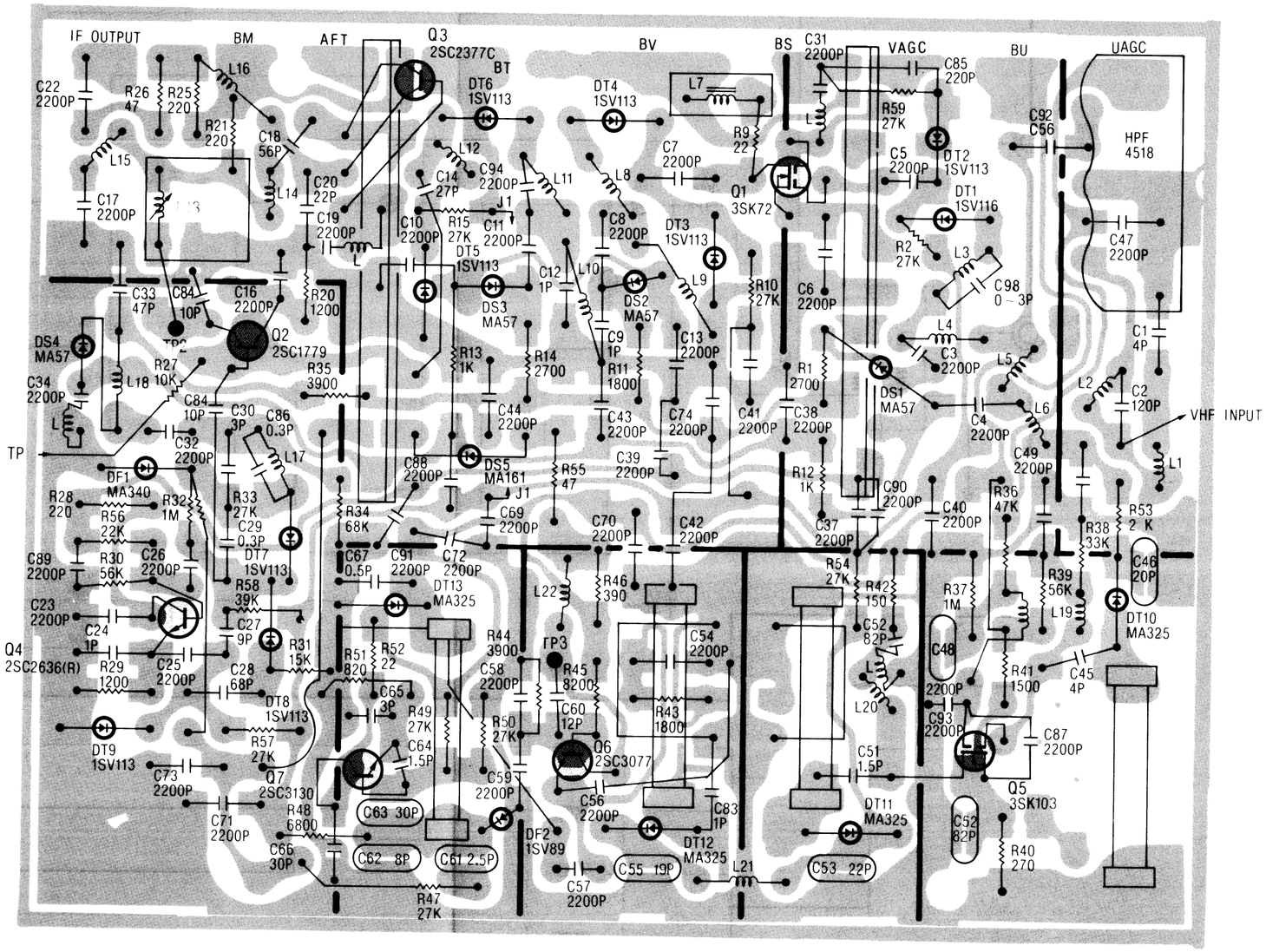

SPECIAL NOTE:
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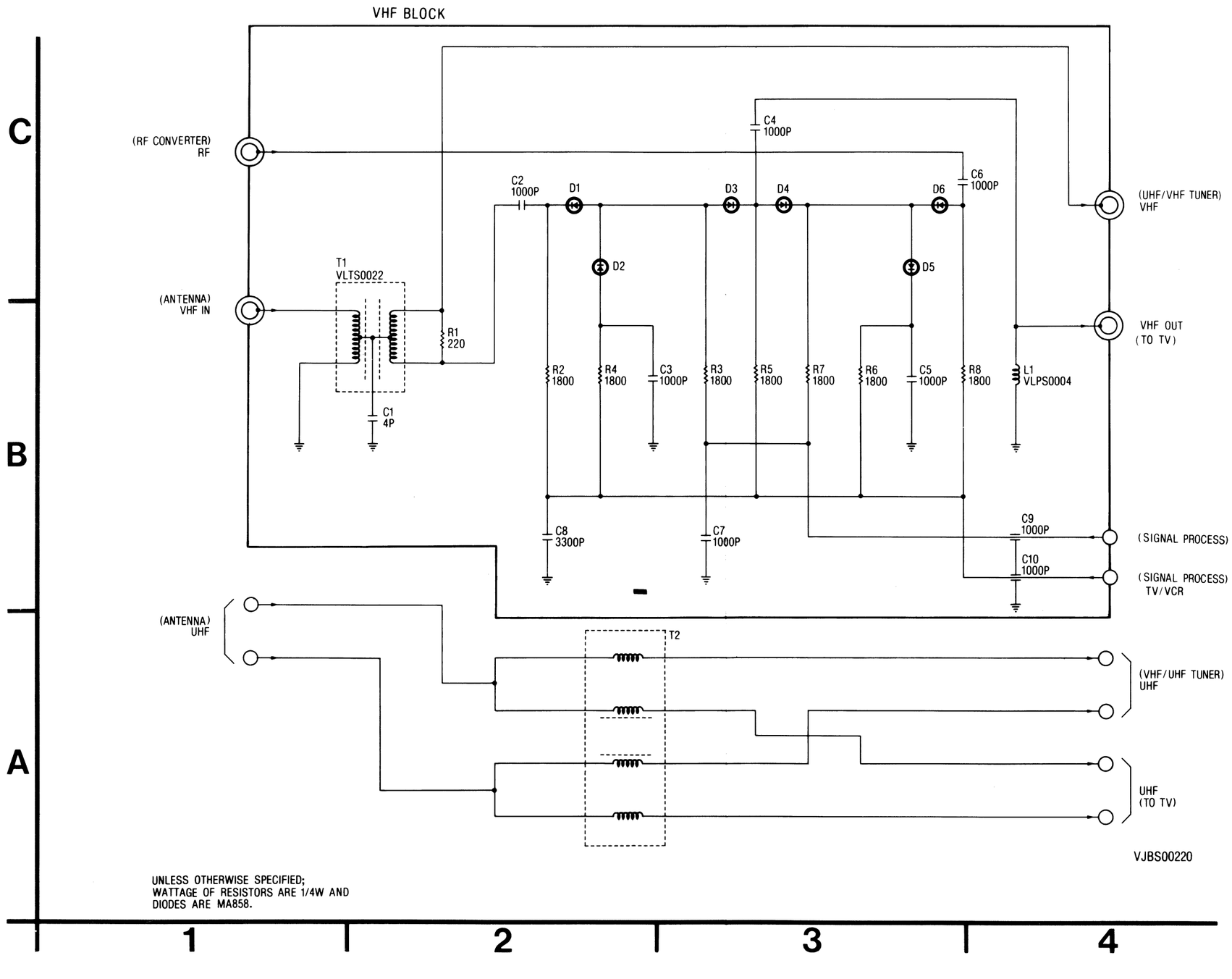
ANTENNA TERMINAL SCHEMATIC DIAGRAM

IMPORTANT NOTICE:
IF UNIT PARTS ARE REPLACED INDIVIDUALLY, THE FCC SPECIFICATIONS WILL NOT BE SATISFIED.
DURING SERVICING, PLEASE REPLACE AS A UNIT.



UNLESS OTHERWISE SPECIFIED;
WATTAGE OF RESISTORS ARE 1/4W AND
DIODES ARE MA858.

ANTENNA TERMINAL UNIT

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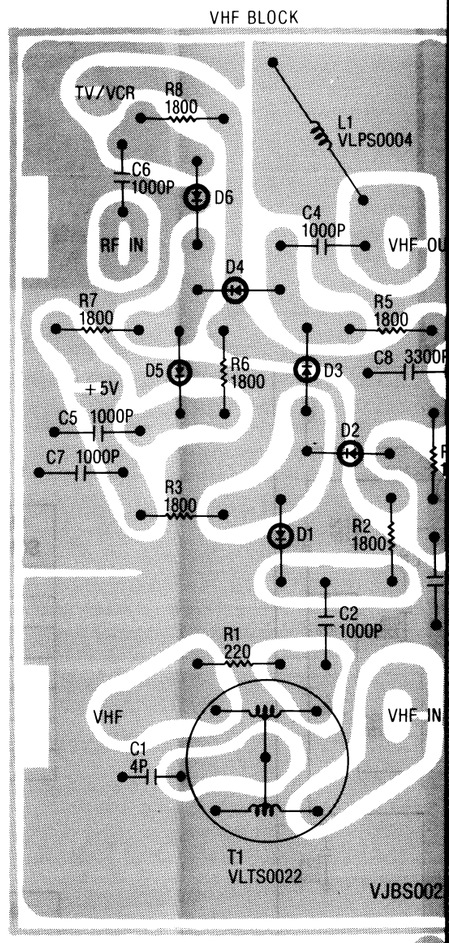

UNLESS OTHERWISE SPECI
WATTAGE OF RESISTORS A
DIODES ARE MA858.

SPECIAL NOTE:
ALL INTEGRATED CIRCUITS AND MANY OTHER SEMICONDUCTOR DEVICES
ELECTROSTATICALLY SENSITIVE AND THEREFORE REQUIRE THE SPECIAL
HANDLING TECHNIQUES DESCRIBED UNDER THE "ELECTROSTATICALLY SE
(ES) DEVICES" SECTION OF THIS SERVICE MANUAL.

ITENNA TERMINAL UNIT

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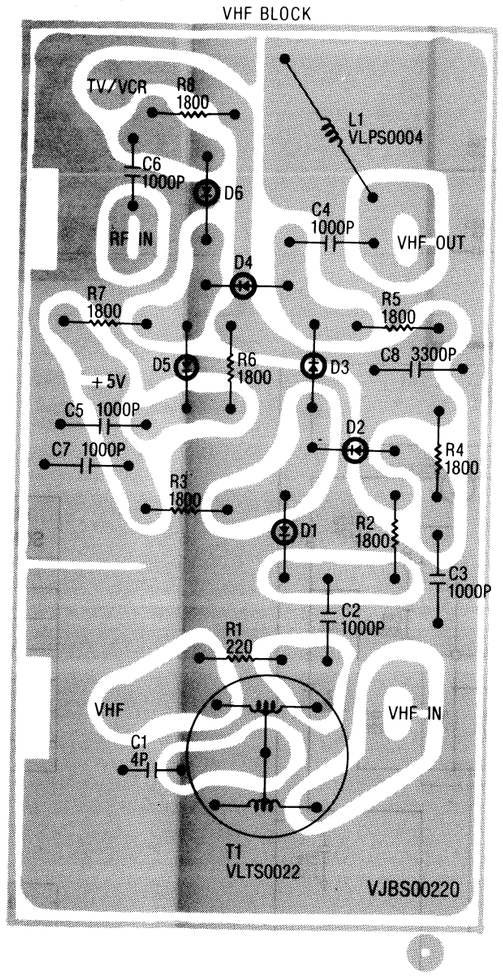
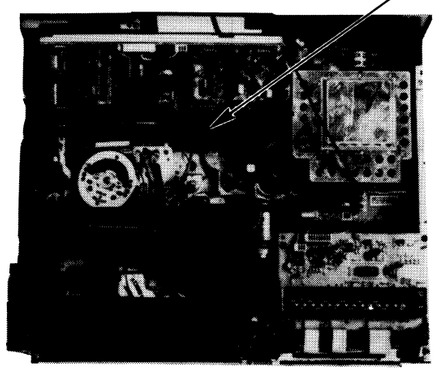


UNLESS OTHERWISE SPECIFIED;
WATTAGE OF RESISTORS ARE 1/4W AND DIODES ARE MA858.

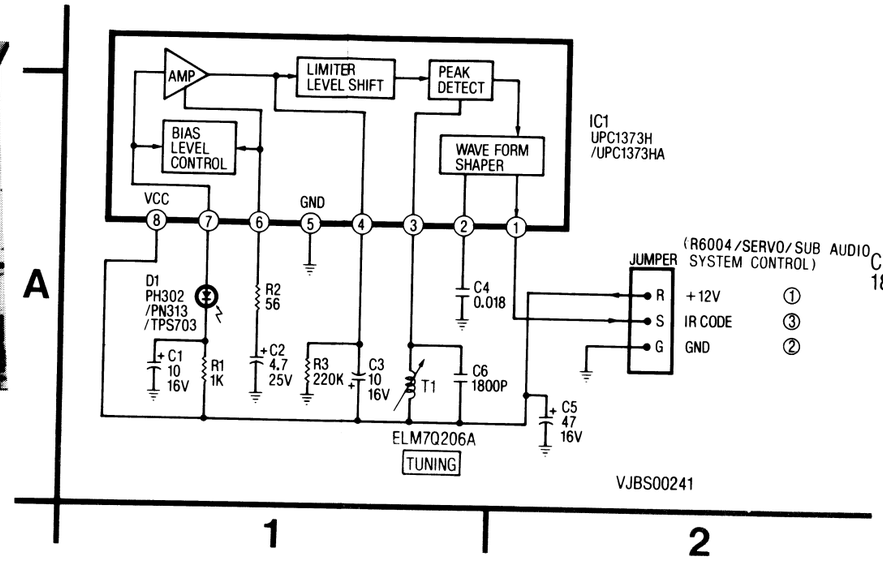
1

CIRCUITS AND MANY OTHER SEMICONDUCTOR DEVICES ARE
LLY SENSITIVE AND THEREFORE REQUIRE THE SPECIAL
IQUES DESCRIBED UNDER THE "ELECTROSTATICALLY SENSITIVE
ECTION OF THIS SERVICE MANUAL.

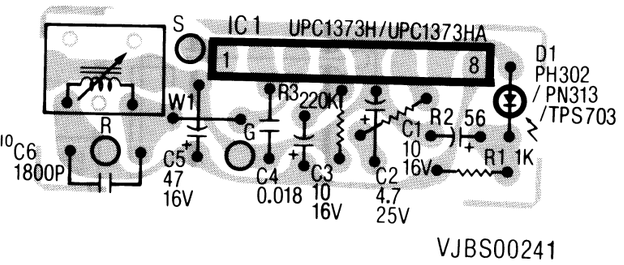
ANTENNA TERMINAL UNIT



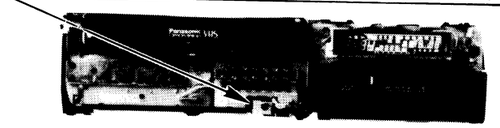
IR RECEIVING DETECTOR SCHEMATIC DIAGRAM (PV-1530)



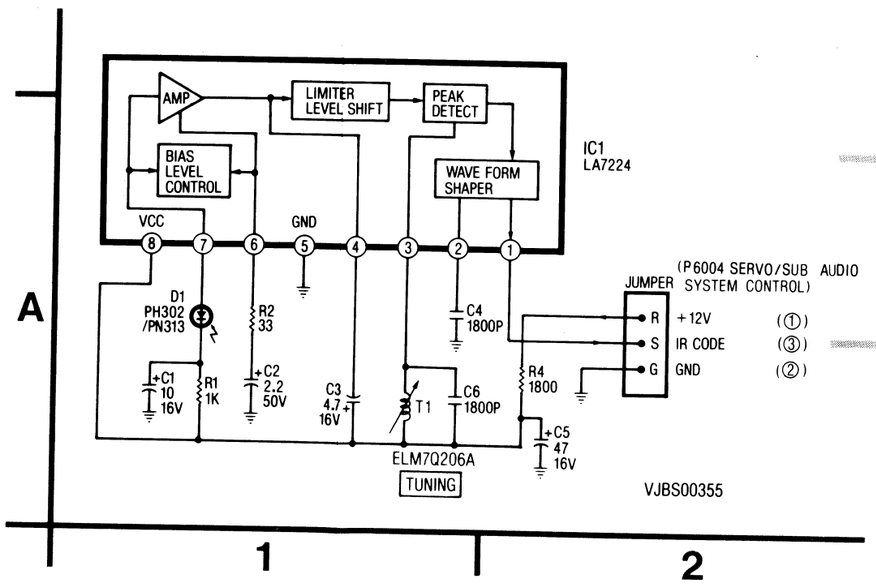
IR RECEIVING DETECTOR UNIT VEQS0285 (PV-1530)



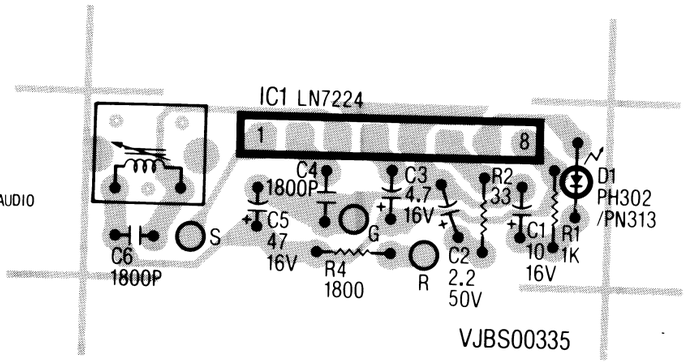
IR WIRELESS RECIEVING DETECTOR UNIT



IR RECEIVING DETECTOR SCHEMATIC DIAGRAM (PV-1530)



IR RECEIVING DETECTOR UNIT VEQS0293 (PV-1530)



IR WIRELESS TRANSMITTER SCHEMATIC DIAGRAM (PV-1530)

SPECIAL NOTE:
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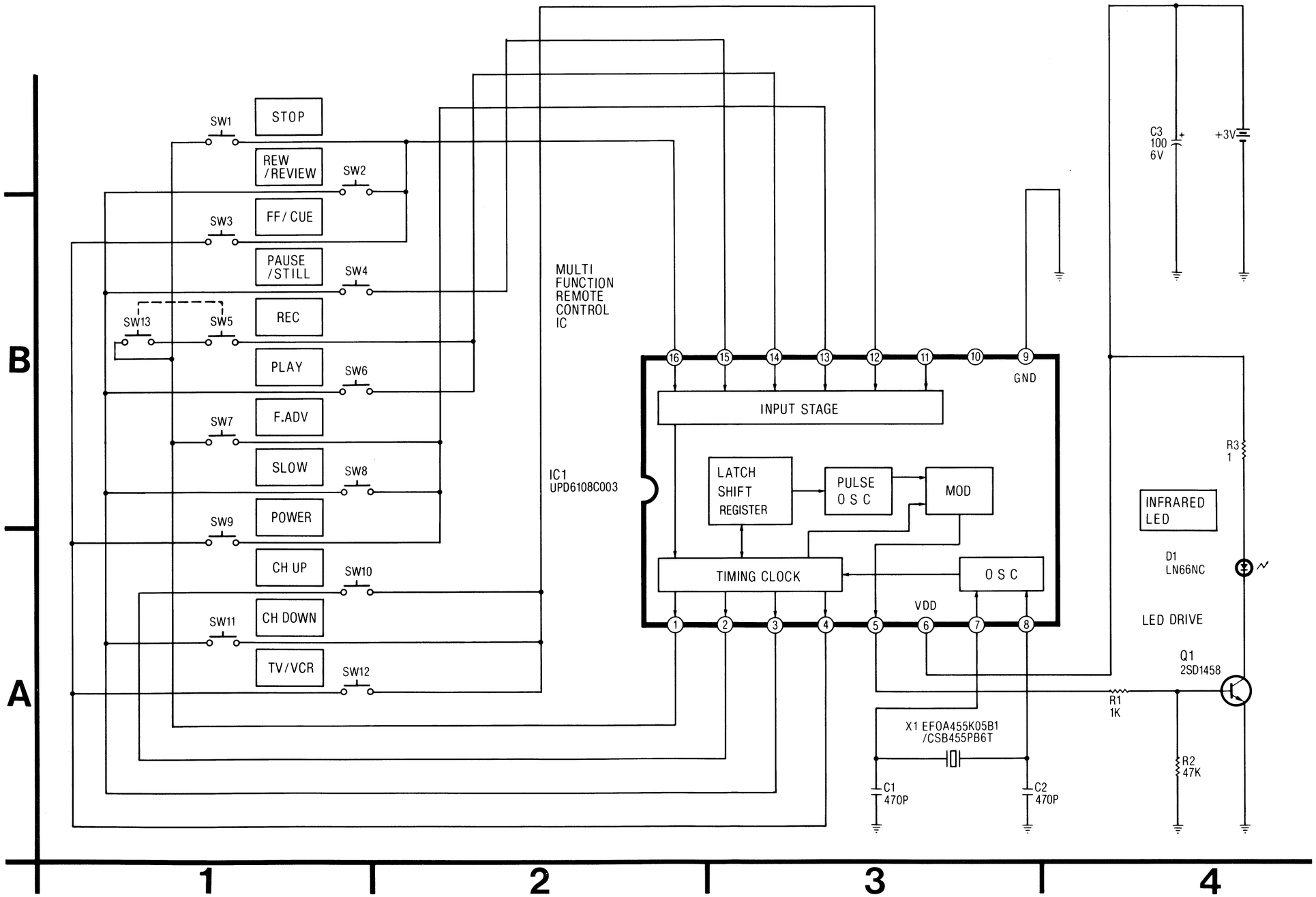

C DIAGRAM
(PV-1530)

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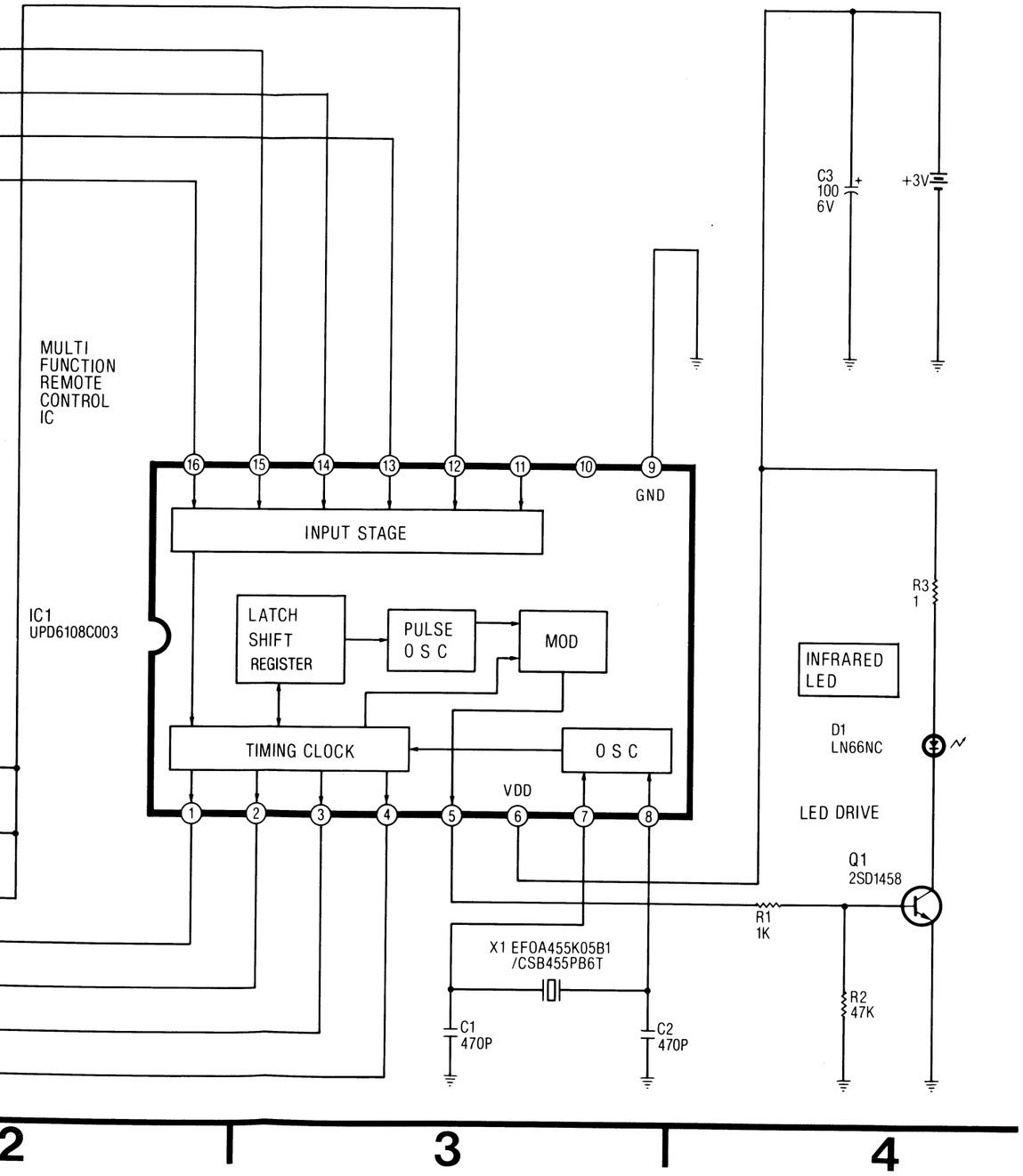
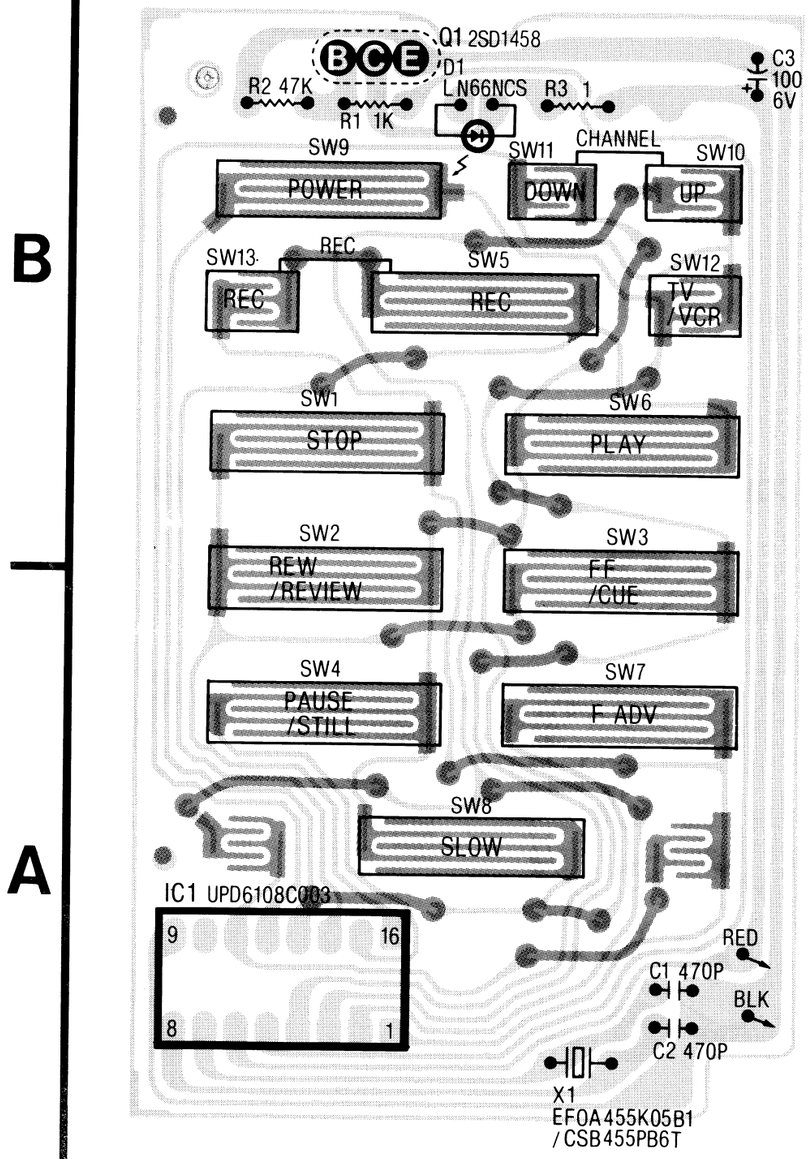


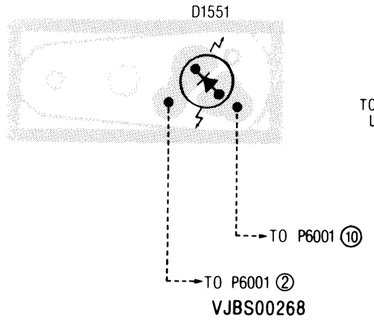
2 3 4

IR WIRELESS TRANSMITTER UNIT
(PV-1530)



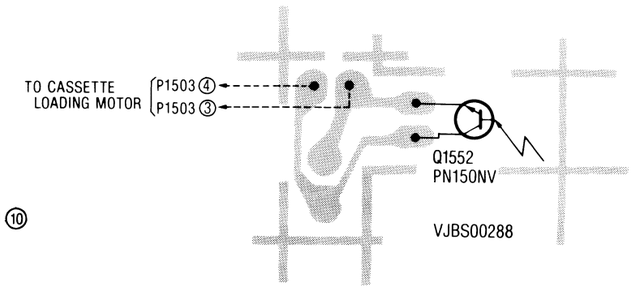
1

SENSOR LED C.B.A.



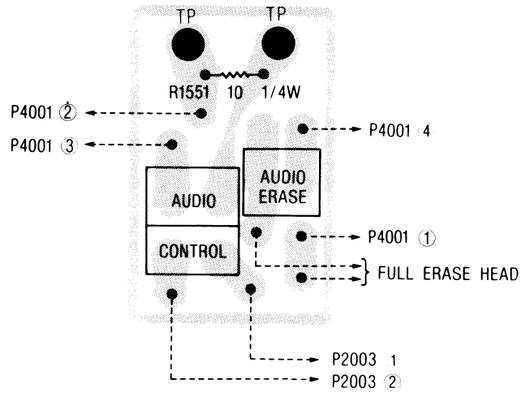
VJBS00268

SUPPLY PHOTO TR C.B.A.



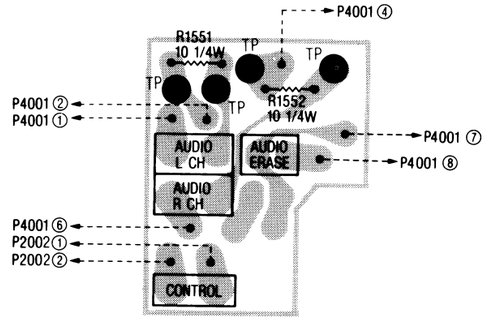
VJBS00288

AUDIO/CONTROL HEAD C.B.A. (PV-1525)



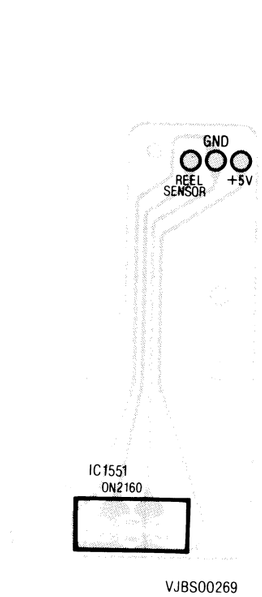
VJBS00233

AUDIO/CONTROL HEAD C.B.A. (PV-1530)



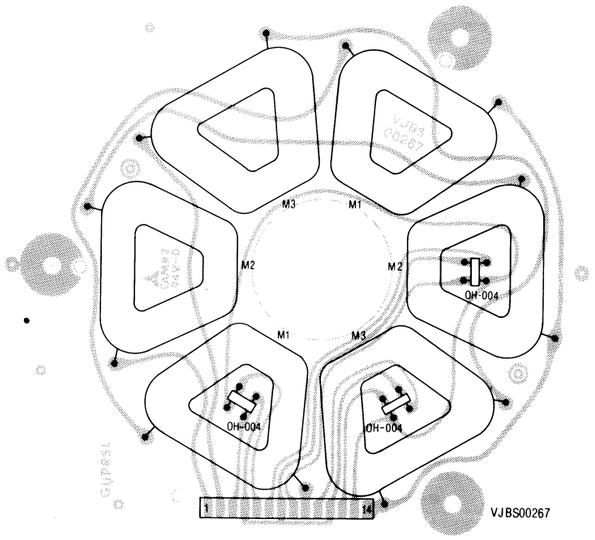
VJBS00242

REEL SENSOR C.B.A. VEPS00269A



VJBS00269

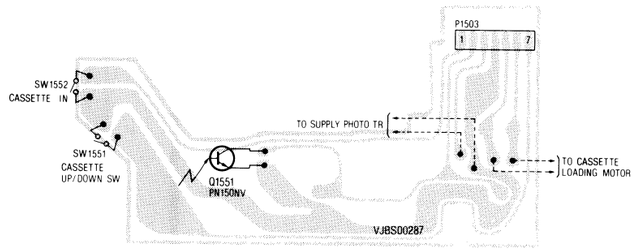
CAPSTAN STATOR COIL ASS'Y VEMS0058



VJBS00267

1	MAIN COIL 2
2	MAIN COIL 3
3	H3 –
4	
5	H3 +
6	H1 –
7	
8	H1 +
9	MAIN COIL 1
10	H2 –
11	VH +
12	H2 +
13	VH –
14	

CASSETTE LOADING MOTOR C.B.A.

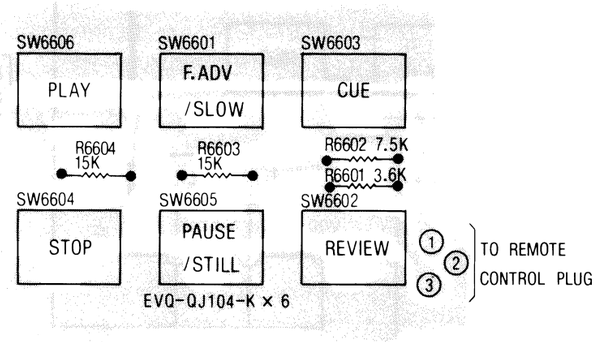


VJBS00287

P1503

1	CASSETTE DOWN SW
2	TAKEUP PHOTO TR
3	SUPPLY PHOTO TR
4	GND
5	CASSETTE Ⓜ UNLOADING Ⓗ
6	CASSETTE Ⓜ LOADING Ⓗ
7	CASSETTE IN SW

WIRED TRANSMITTER (7FUNCTION) UNIT (PV-1525)



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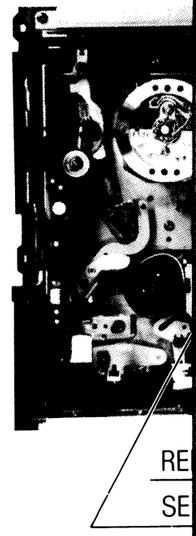
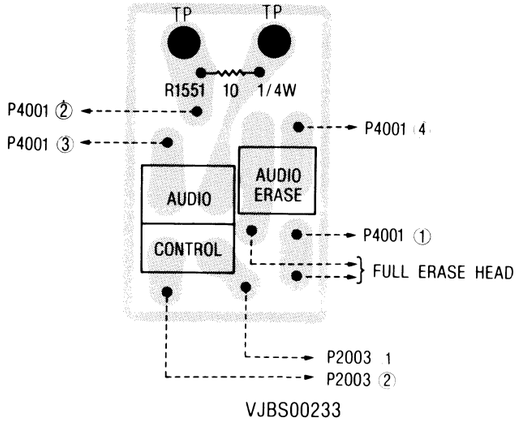
AUDIO/CON

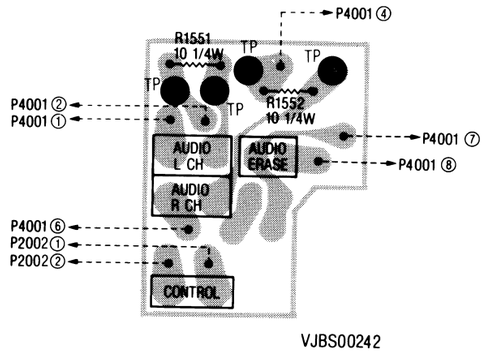


AUDIO/CONTROL HEAD C.B.A. (PV-1525)



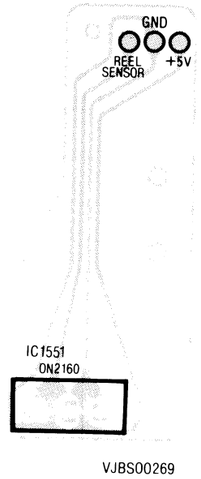
VJBS00233

AUDIO/CONTROL HEAD C.B.A. (PV-1530)



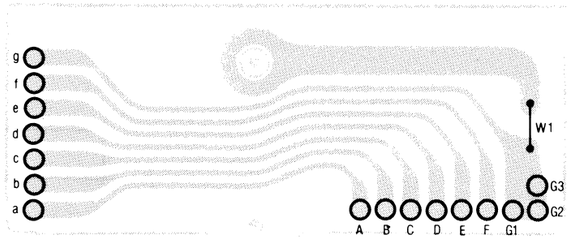
VJBS00242

REEL SENSOR C.B.A. VEPS00269A



VJBS00269

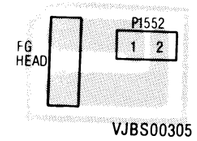
CONNECTION C.B.A.



VJBS00296

a	UNSWITCH +12V
b	SENSOR LED PULSE
c	DEW SENSOR
d	POSITION 1
e	POSITION 2
f	POSITION 3
g	GND

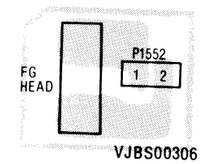
CAPSTAN FG C.B.A.



VJBS00305

P1552	
1	GND
2	CAP Ⓜ FG

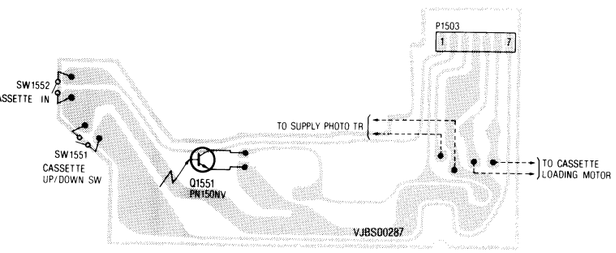
CAPSTAN FG C.B.A.



VJBS00306

P1552	
1	GND
2	CAP Ⓜ FG

CASSETTE LOADING MOTOR C.B.A.

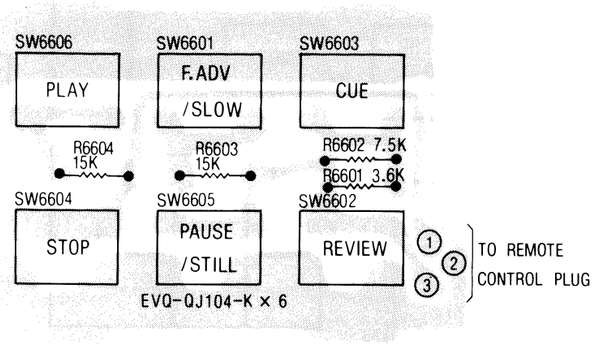


VJBS00287

P1503

1	CASSETTE DOWN SW
2	TAKEUP PHOTO TR
3	SUPPLY PHOTO TR
4	GND
5	CASSETTE Ⓜ UNLOADING Ⓗ
6	CASSETTE Ⓜ LOADING Ⓗ
7	CASSETTE IN SW

WIRED TRANSMITTER (7FUNCTION) UNIT (PV-1525)



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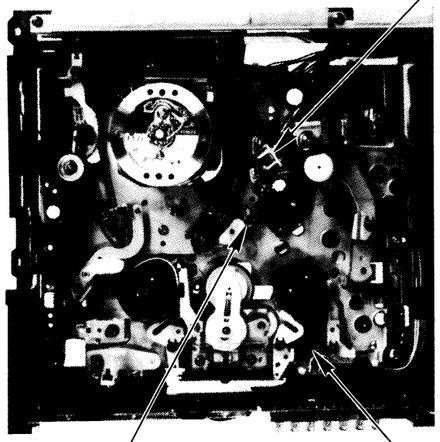
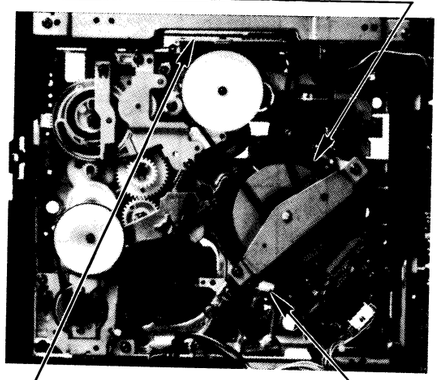
AUDIO/CONTROL HEAD C.B.A.



REEL SENSOR C.B.A.

SENSOR LED C.B.A.

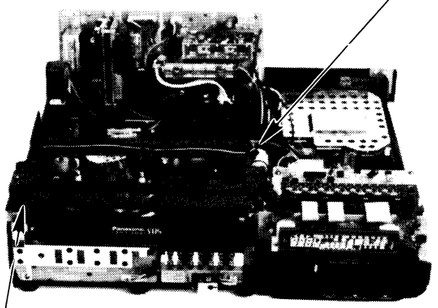
CAPSTAN STATOR COIL C.B.A.



CAPSTAN FG C.B.A.

CONNECTION C.B.A.

CASSETTE LOADING MOTOR DRIVE C.B.A.

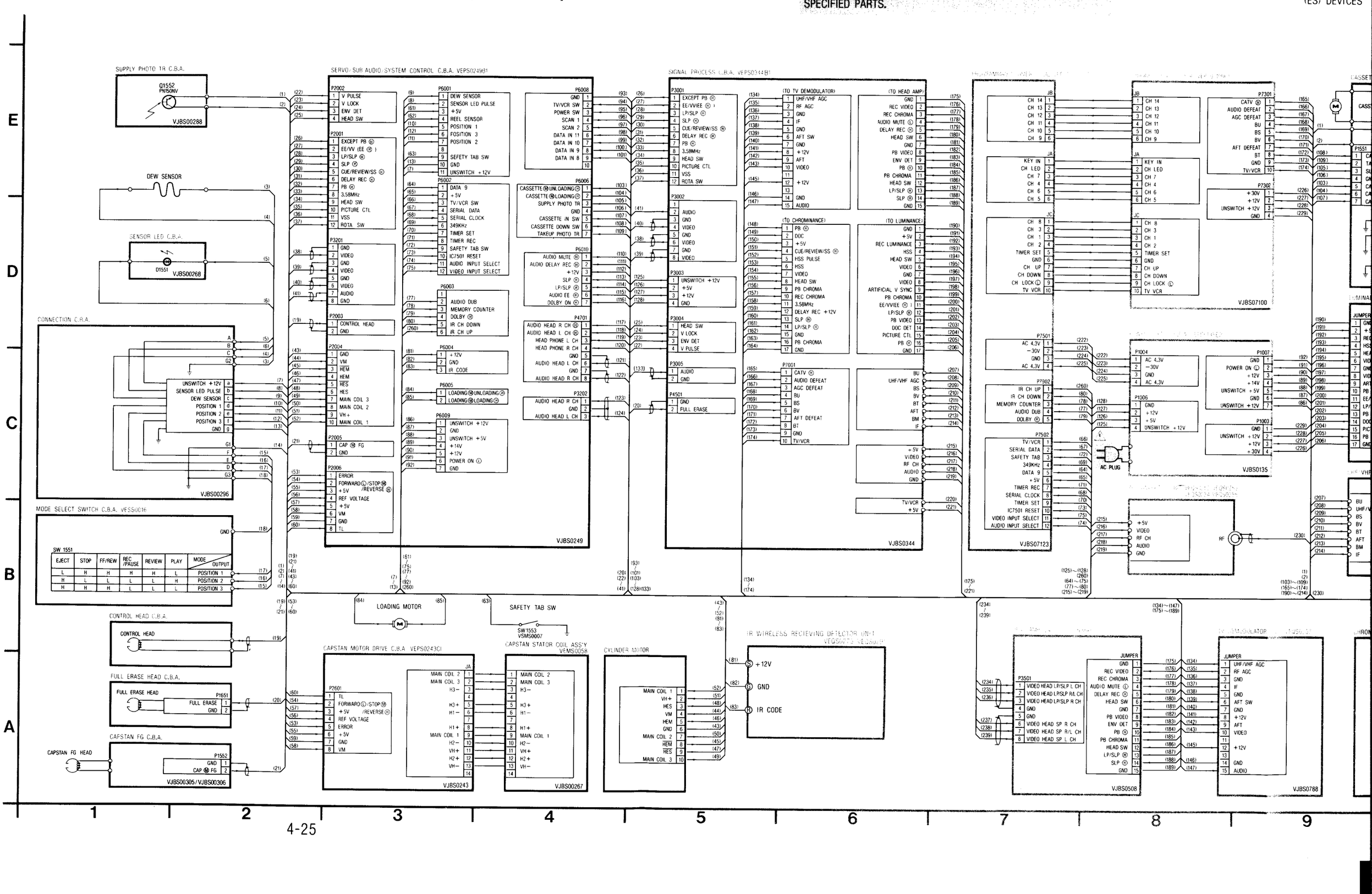


SUPPLY PHOTO TR C.B.A.

INTERCONNECTION SCHEMATIC DIAGRAM (PV-1530)

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.

SPECIAL NOTE:
ALL INTEGRATE
ELECTROSTATIC
HANDLING TECH
(ES) DEVICES"



(PV-1530)

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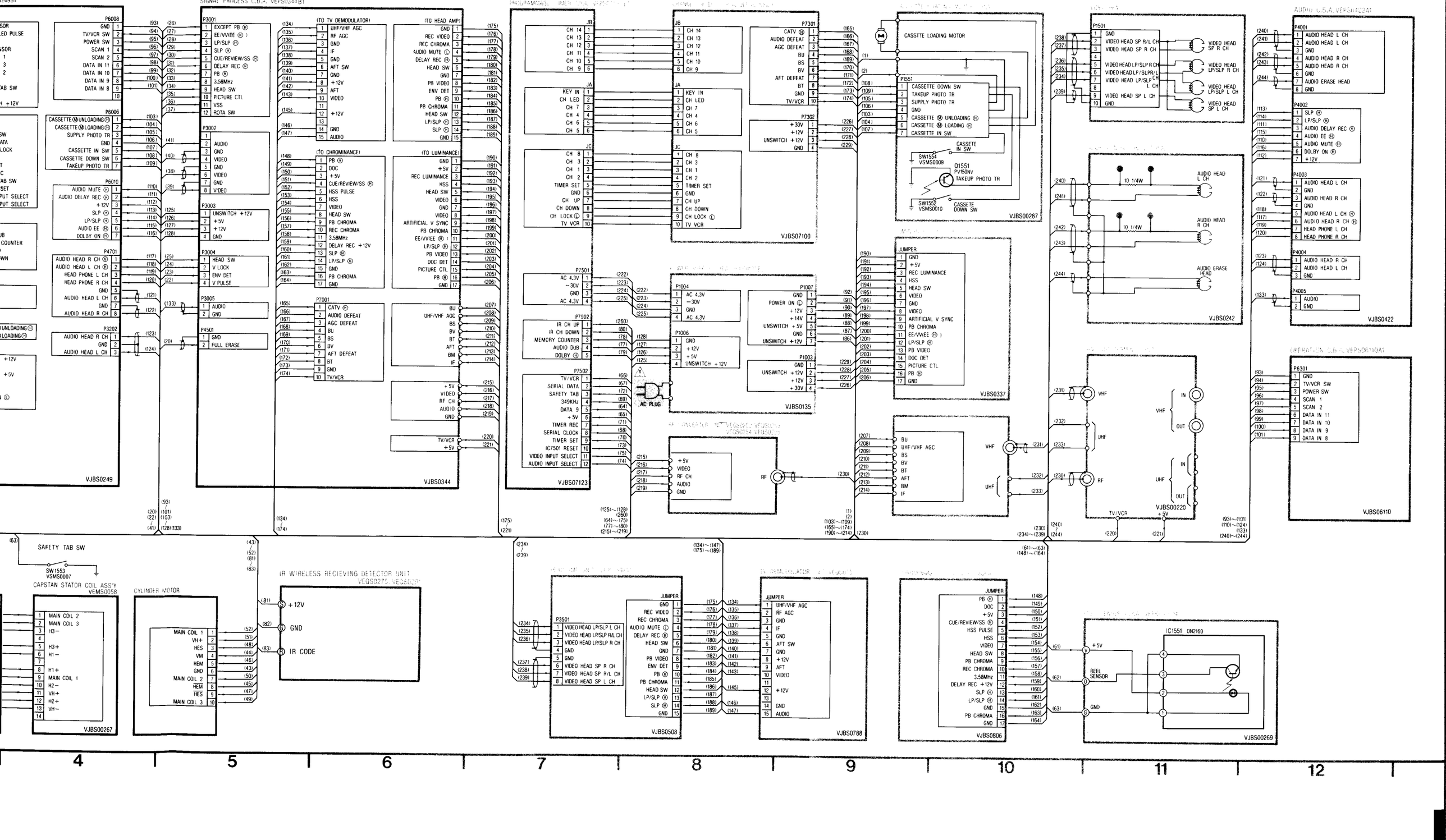

INTERCONNECTION SCHEMATIC DIAGRAM (PV-1525)

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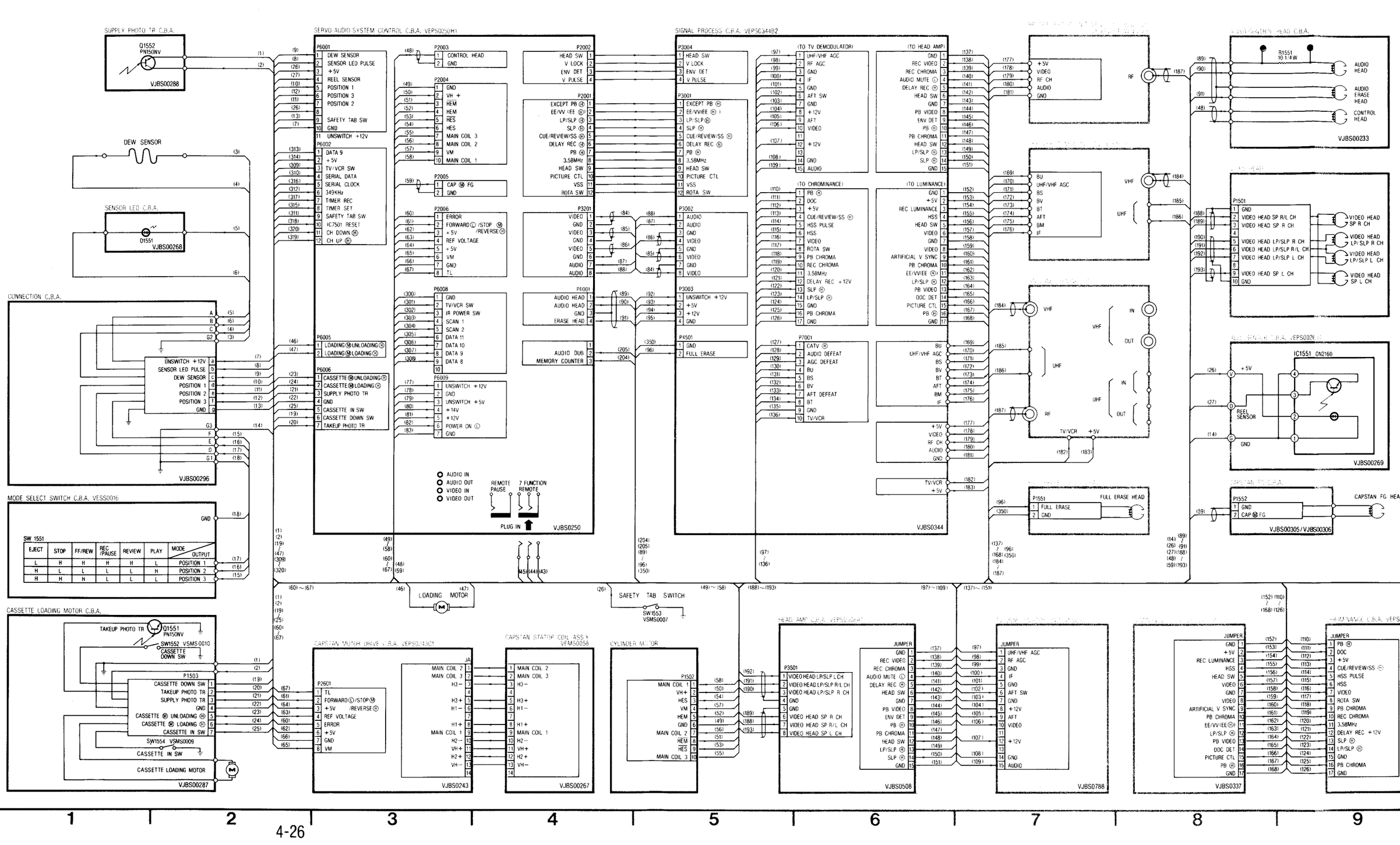
SPECIAL NOTE
ALL INTEGRAT
ELECTROSTAT
HANDLING TEC
(ES) DEVICES



(PV-1525)

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4 5 6 7 8 9 10 11 12

ORDER NO. VRD-8404-569
B3

Service Manual

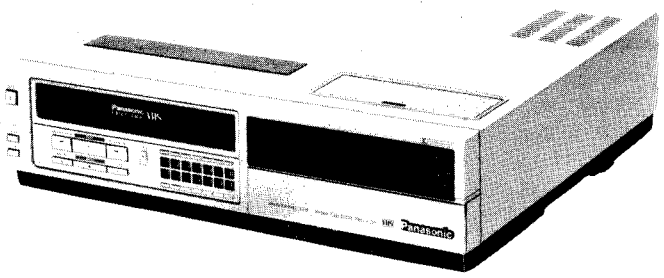
Video Cassette Recorder

Vol. 5

Panasonic Omnivision VHS

Exploded Views
Replacement Parts List

PV-1530
PV-1525



SPECIFICATIONS

Power Source:	120 V AC ± 10%, 60 Hz ± 0.5%
Power Consumption:	Approx. 22 watts
Television System:	EIA Standard (525 lines, 60 fields) NTSC color signal
Video Recording System:	4 rotary heads, helical scanning system Luminance: FM azimuth recording Color signal: Converted subcarrier phase shift recording
Audio Track:	2 track (PV-1525: 1 track)
Tape Format:	Tape width 1/2" (12.7 mm), high density tape
Tape Speed:	SP mode: 1-5/16 i.p.s. (33.35 mm/s) LP mode: 21/32 i.p.s. (16.67 mm/s) SLP mode: 7/16 i.p.s. (11.12 mm/s)
Record/Playback Time:	8 HRS. with 160 min. type tape used in SLP mode
FF/REW Time:	Less than 6 min. with 120 min. type tape
Heads:	Video: 4 rotary heads Audio/Control: 2 stationary head (PV-1525: 1 stationary head) Erase: 1 full track erase 1 audio track erase
Input Level:	Video: VIDEO IN Jack (RCA type) 1.0 Vp-p, 75Ω unbalanced Audio: AUDIO IN Jack (RCA type) (Right, Left) −20 dB, 50 kΩ unbalanced MIC IN jack (M6) (Right, Left) −70 dB, 4 kΩ unbalanced PV-1525: MIC IN jack (M3) −70 dB, 4 kΩ unbalanced
TV Tuners:	VHF Input: VHF Ch2-Ch13, cable channels "A"~"W", "A-2", "A-1" 75Ω unbalanced UHF Input: Ch14-Ch83, 300Ω balanced
Output Level:	Video: VIDEO OUT Jack (RCA type) 1.0 Vp-p, 75Ω unbalanced Audio: AUDIO OUT Jack (RCA type) (Right, Left) −9 dB, 1 kΩ unbalanced PV-1525: −6 dB, 600Ω unbalanced
RF Modulated:	Ch3/Ch4 switchable, 72 dBμ, (Open Voltage) 75Ω unbalanced
Video Horizontal Resolution:	Color: more than 230 lines B/W: more than 230 lines
Audio Frequency Response: (10 dB down)	SP mode: 100 Hz ~ 8 kHz LP mode: 100 Hz ~ 6 kHz SLP mode: 150 Hz ~ 5 kHz
Signal-to-Noise Ratio:	Video: SP mode: better than 41 dB LP mode: better than 41 dB SLP mode: better than 41 dB (Rohde & Schwarz noise meter) Audio: SP mode: better than 42 dB LP mode: better than 40 dB SLP mode: better than 40 dB
Operation Temperature:	41°F—104°F (5°C—40°C)
Operating Humidity:	10%—75%
Weight:	16.8 lbs. (7.6 kg) PV-1525: 15.7 lbs. (7.1 kg)
Dimensions:	16-15/16"(W) × 14-5/16"(D) × 4-1/4"(H) (430 mm × 364 mm × 108 mm)
Accessories Supplied:	• Remote control unit (PV-1525) • Wireless Remote control unit (PV-1530) • VHF connecting cable • 300Ω—75Ω transformer • Twin-lead cable • V-Lock Tool
Available Tapes:	1/2" VHS video cassette tapes NV-T160 Approx. 1073 ft. (327 m), 160, 320, or 480 min. NV-T120 Approx. 810 ft. (247 m), 120, 240, or 360 min. NV-T60 Approx. 417 ft. (127 m), 60, 120, or 180 min.

Weight and dimensions shown are approximate.

Specifications are subject to change without notice.

Panasonic®

Matsushita Engineering & Service Company
Division of Matsushita Electric
Corporation of America
50 Meadowland Parkway, Secaucus,
New Jersey 07094

Panasonic Hawaii Inc.
91-238 Kauhi St. Ewa Beach
P.O. Box 774
Honolulu, Hawaii 96808-0774

Matsushita Electric
of Canada Limited
5770 Ambler Drive, Mississauga,
Ontario, L4W 2T3

Panasonic Sales Company,
Division of Matsushita Electric
of Puerto Rico, Inc.
Ave, 65 De Infanteria, KM 9.7
Victoria Industrial Park
Carolina, Puerto Rico 00630

CONTENTS

IMPORTANT SAFETY NOTICE

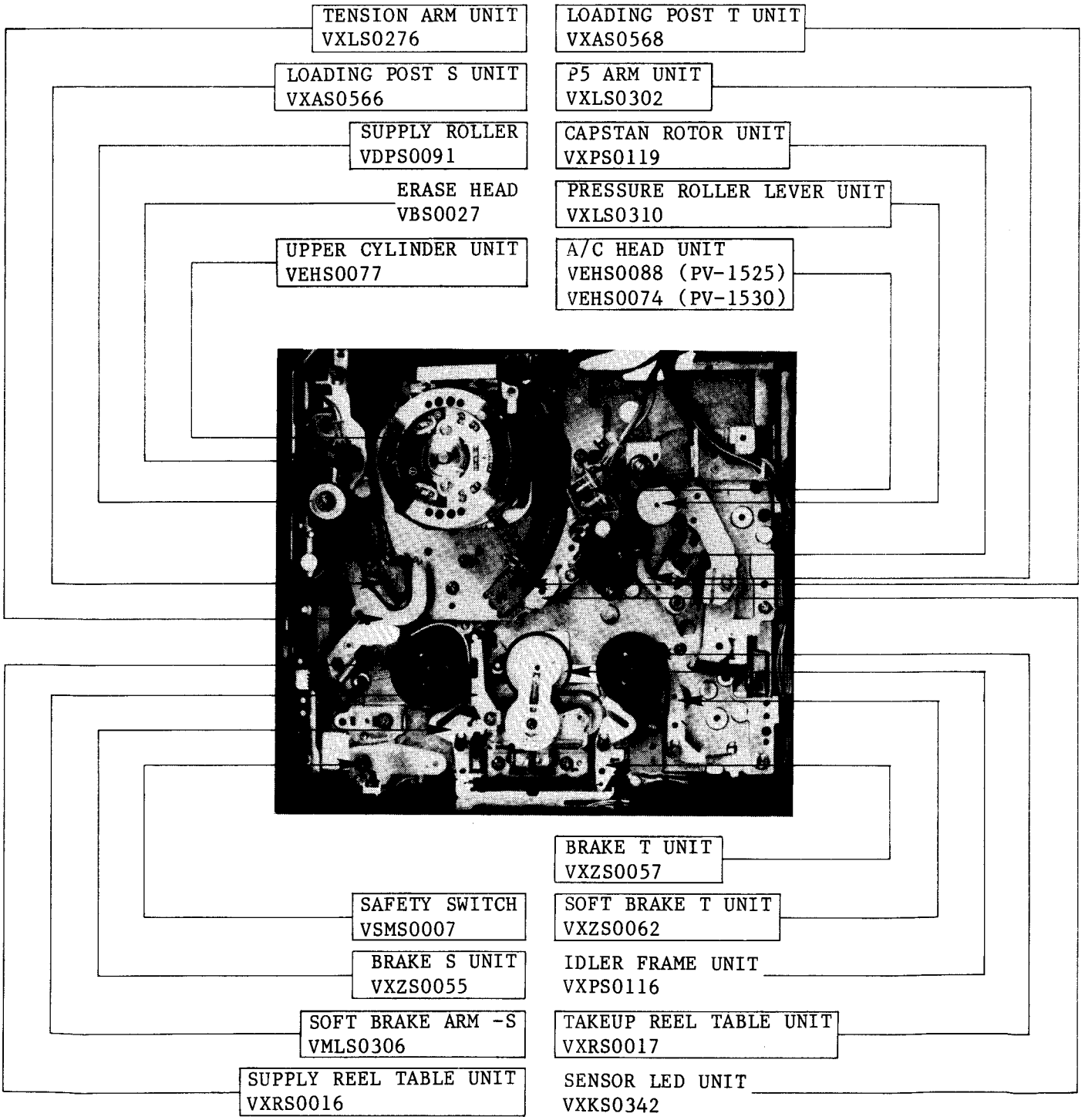
There are special components used in this equipment which are important for safety. These parts are shaded on the schematic diagram and on the replacement parts list. It is essential that these critical parts should be replaced with manufacturer's specified parts to prevent shock, fire, or other hazards. Do not modify the original design without permission of manufacturer.

INNER PARTS LOCATION

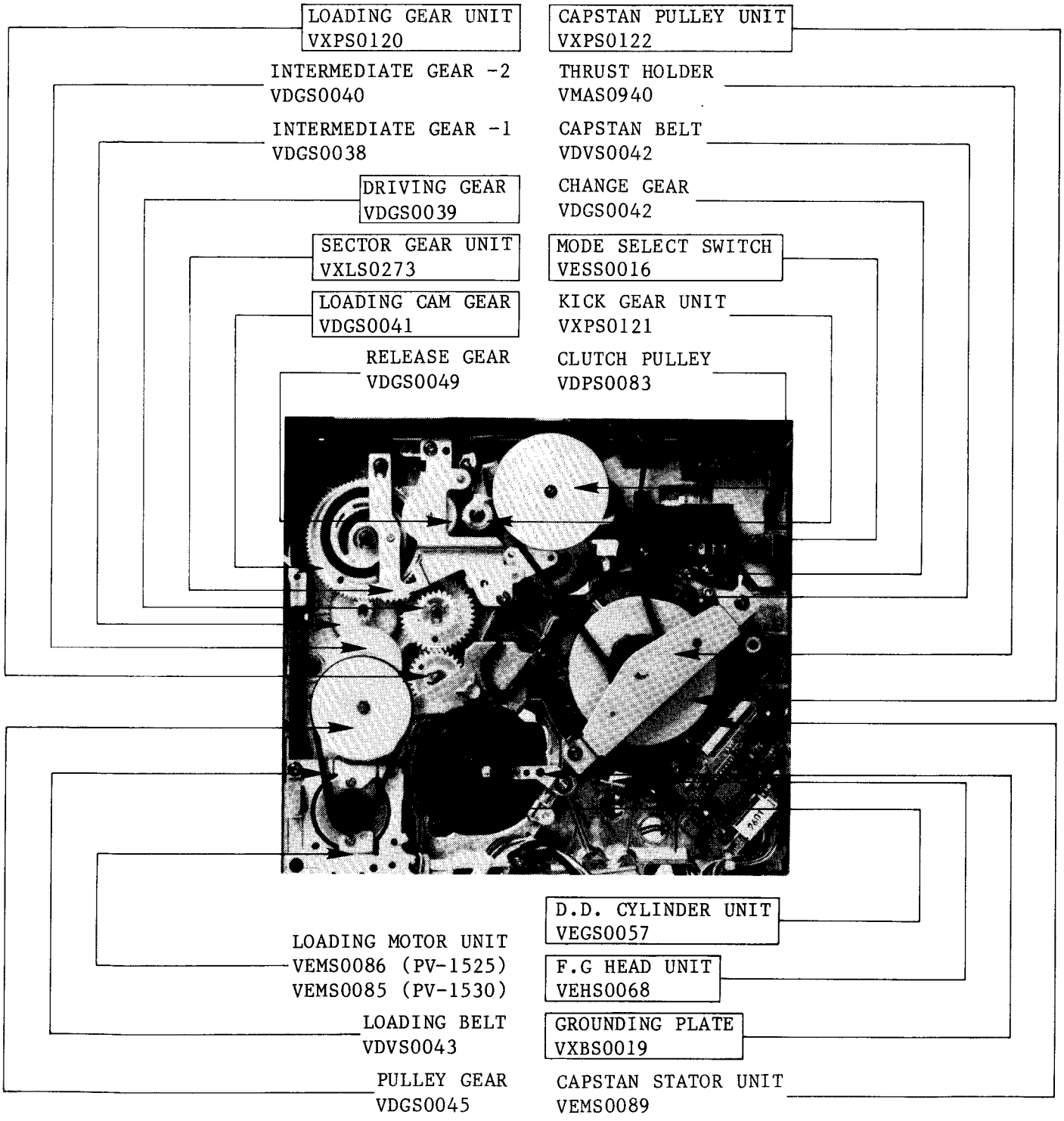
TOP VIEW

Note:

When the mechanical parts surrounded by rectangle are removed or replaced, be sure to perform necessary adjustment or confirmation procedures according to the mechanical adjustment procedures section.



BOTTOM VIEW

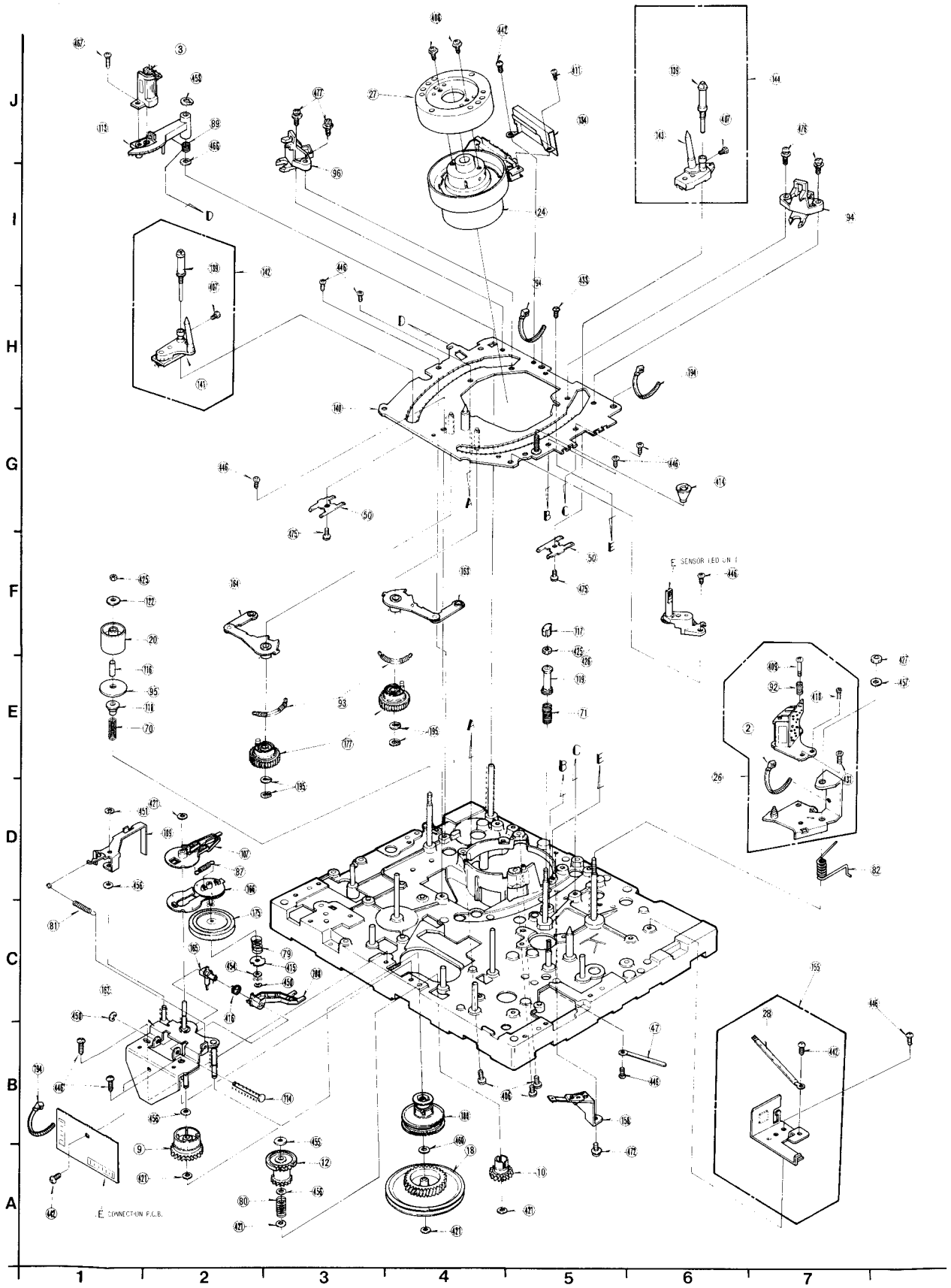


LUBRICATION POINTS

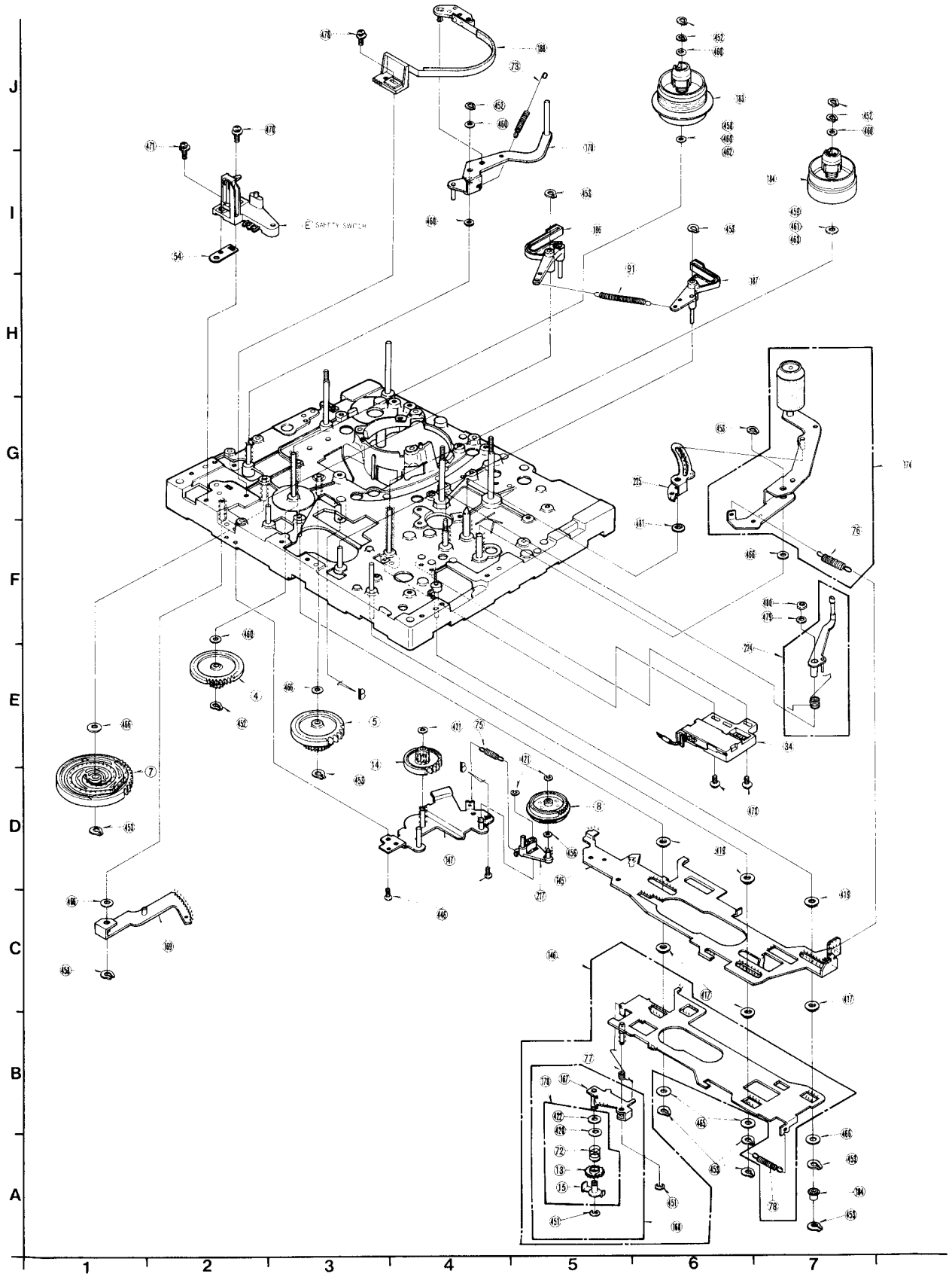
When the marked parts are replaced, apply the recommended lubricants or adhesive for better maintenance of the unit.

Marks	Kind of Lubricant	Availability	Part Number
XXX	Molytone Grease	Available From Factory	M0R265
OOO	Spindle Oil	Purchase From Local Supplier	. . . . .
ΔΔΔ	Gummed Adhesive	Purchase From Local Supplier	. . . . .

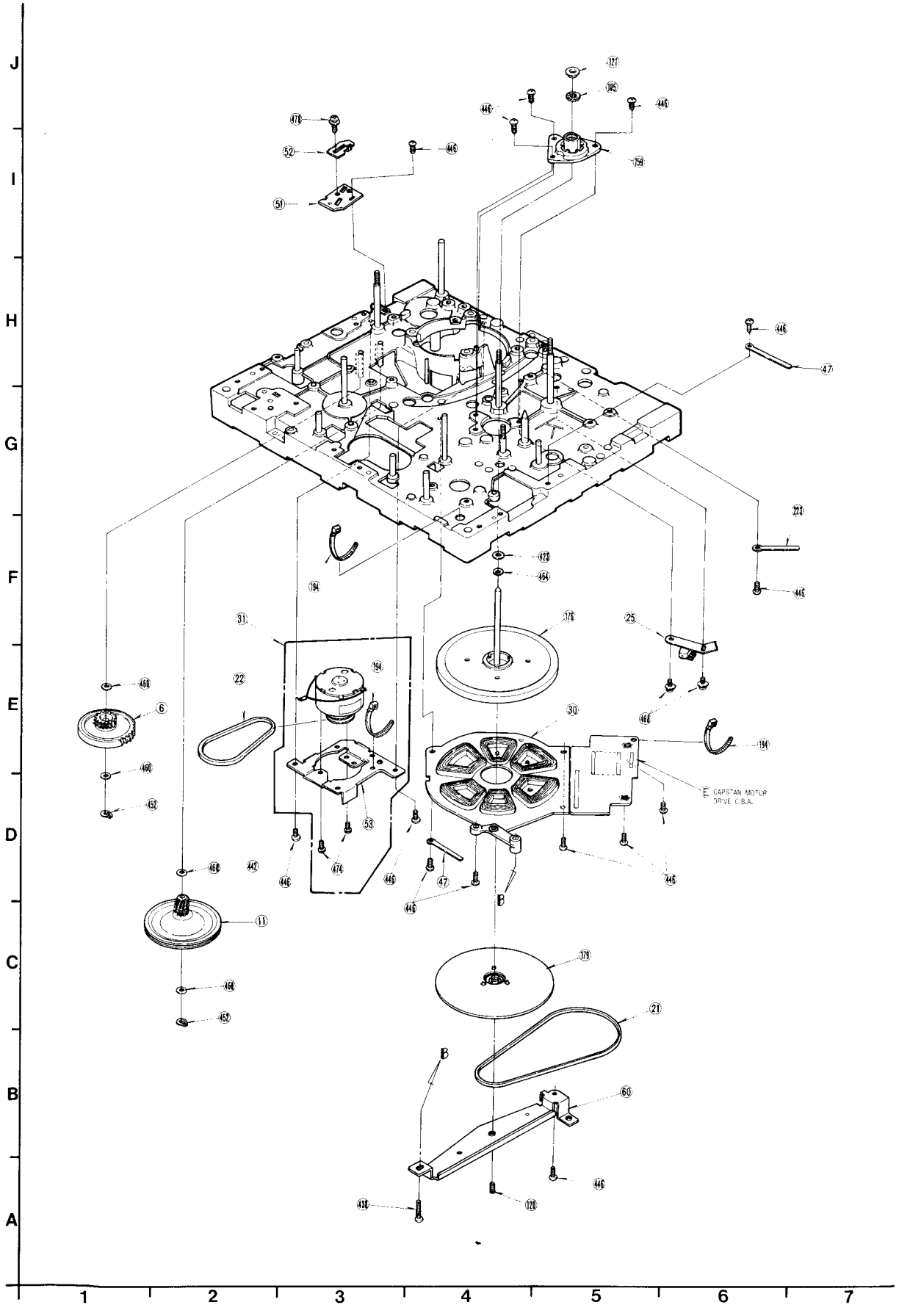
EXPLODED VIEWS ❶ *Transport Section*



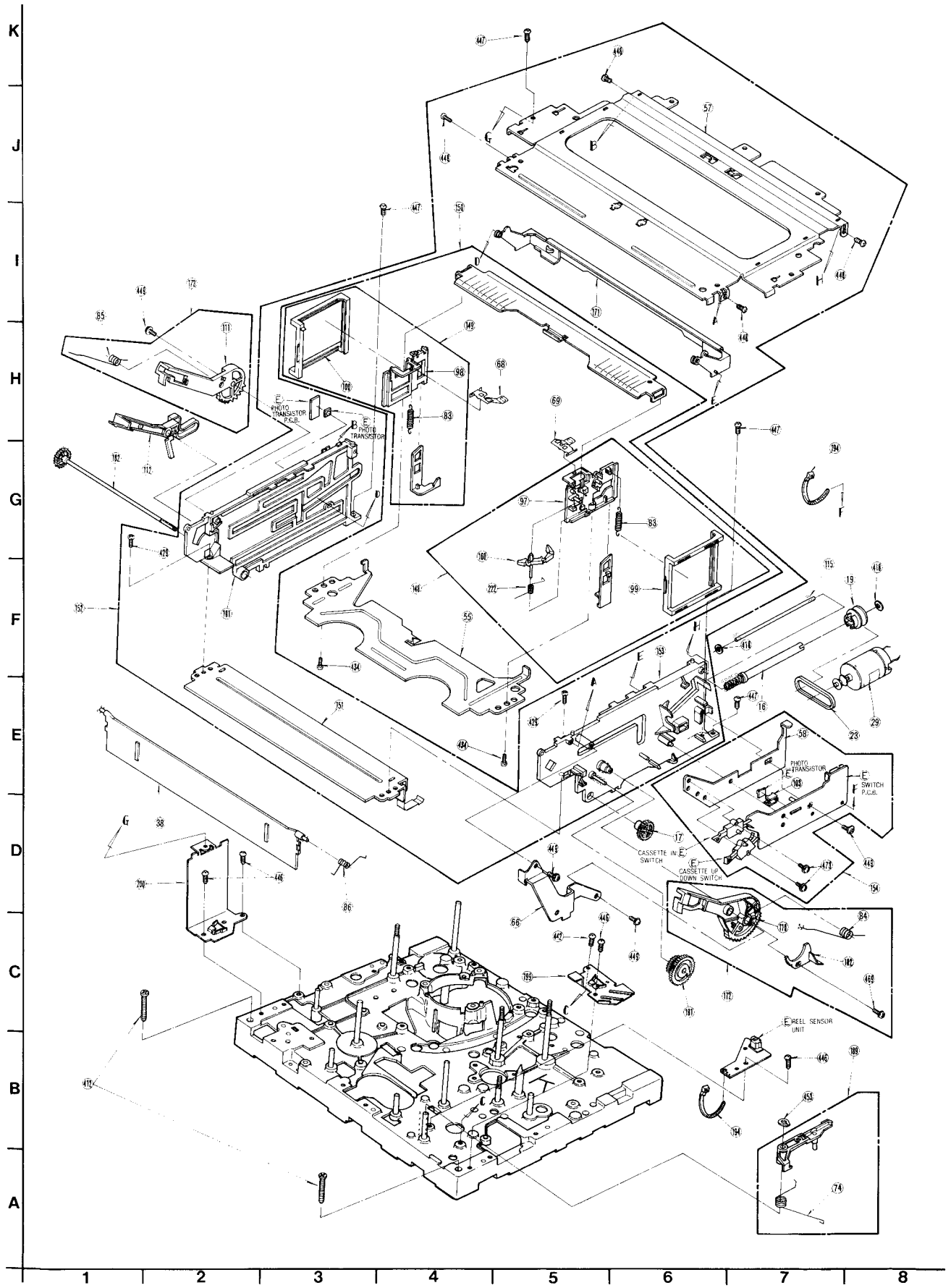
❷ *Moving Mechanism Section-(1)*



❸ *Moving Mechanism Section-(2)*



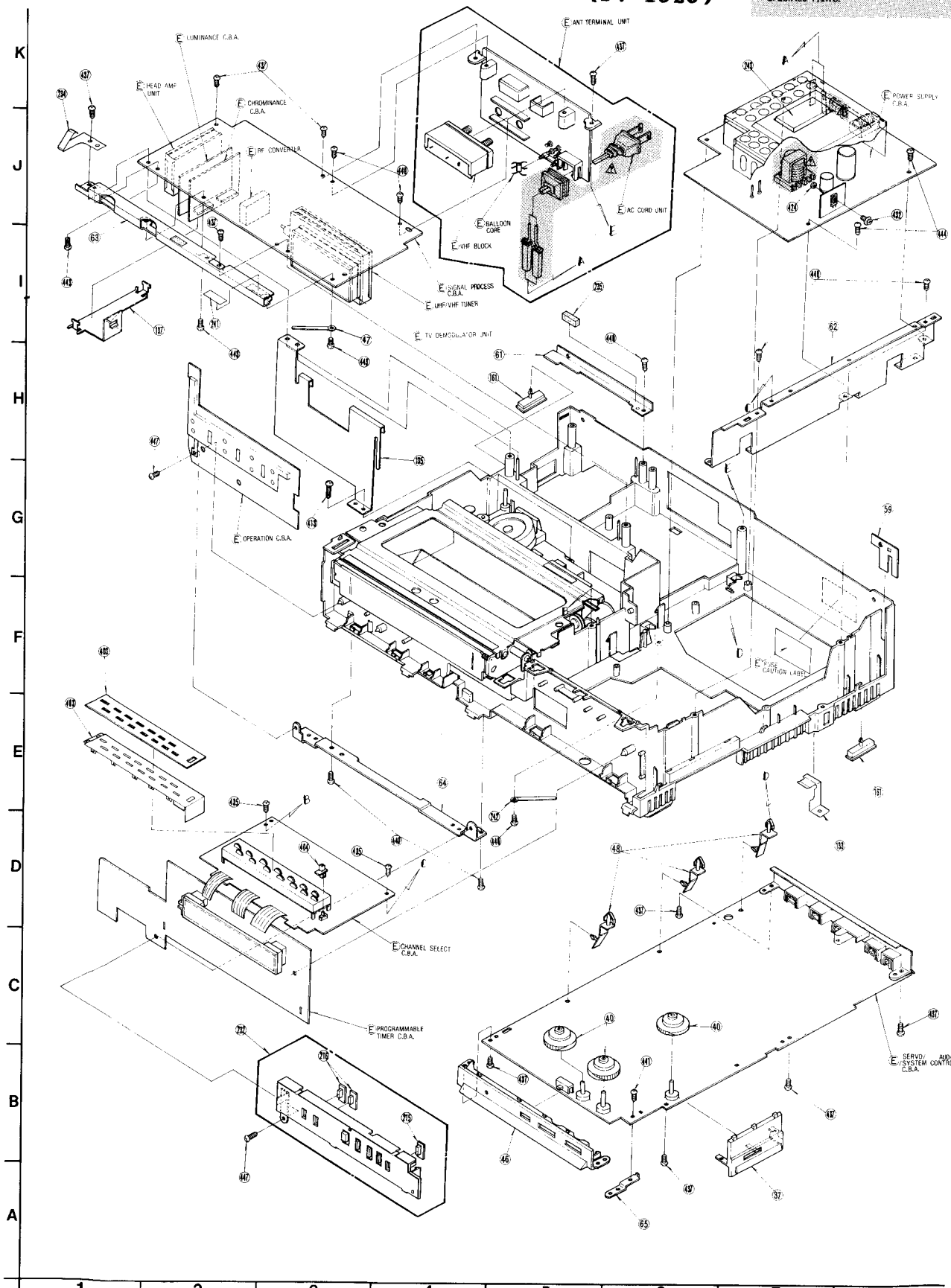
4 Cassette Up Mechanism Section



5 Chassis Frame & Tuner Parts Section

(PV-1525)

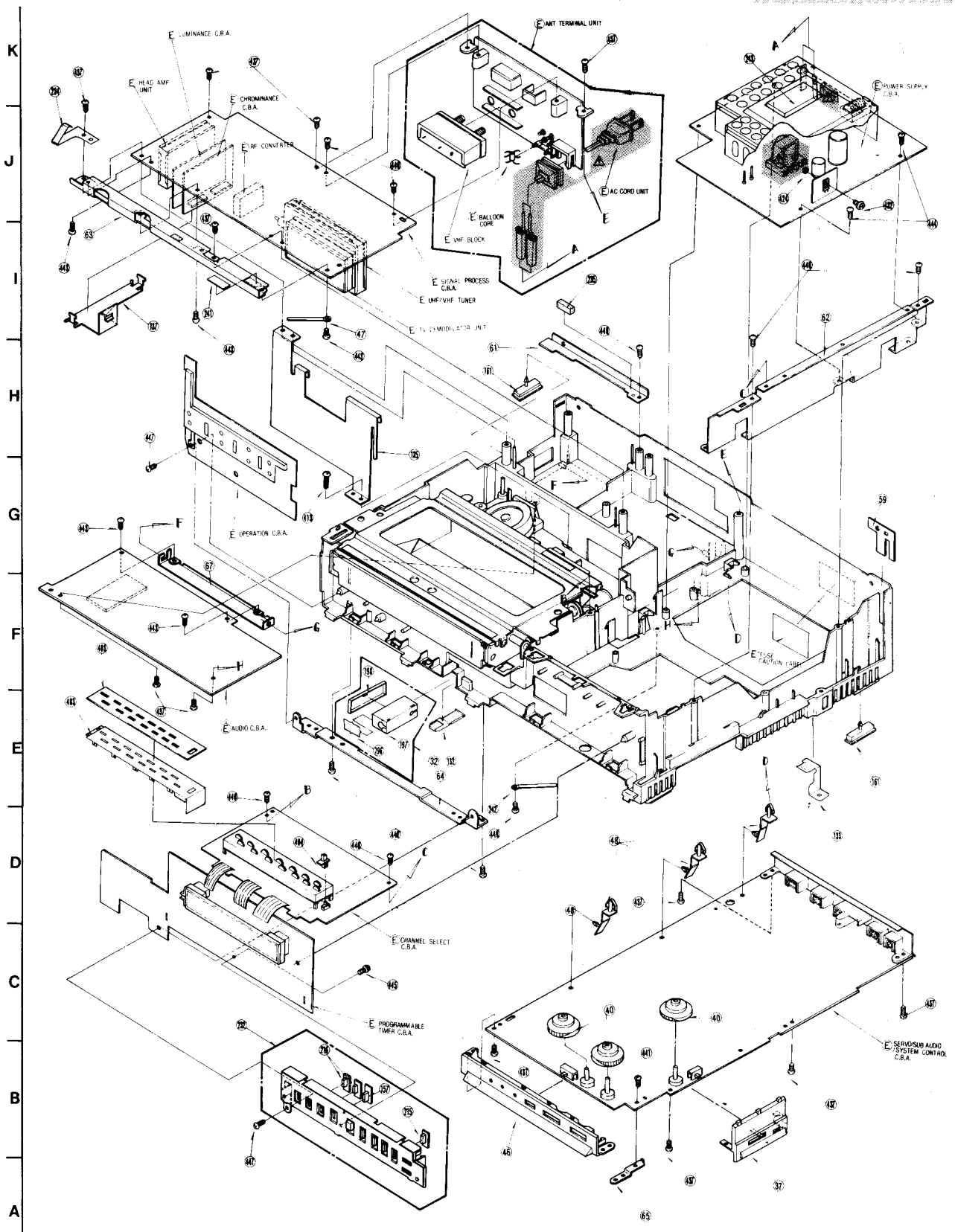
IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS,USE ONLY THE SPECIFIED PARTS.



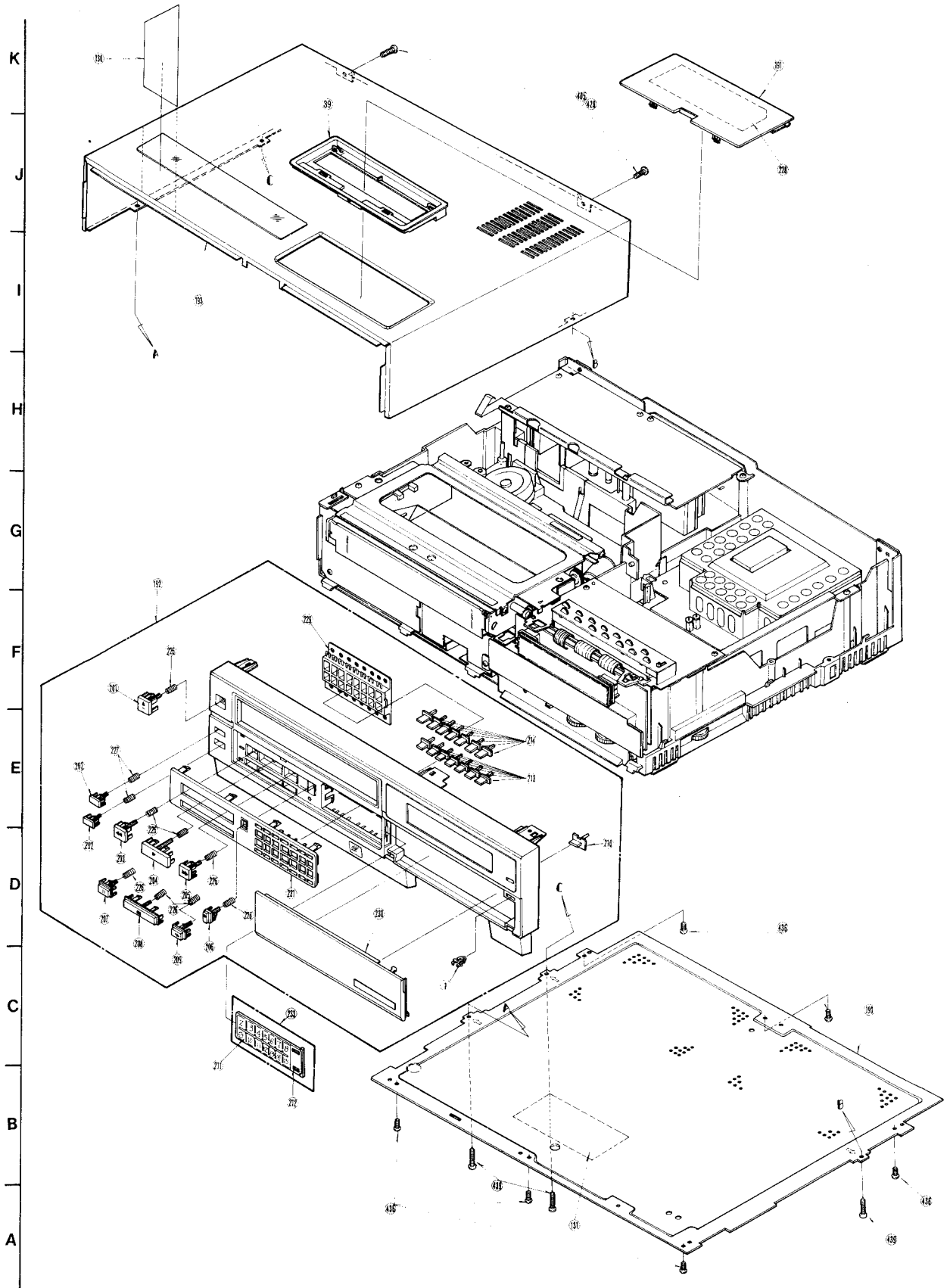
5 Chassis Frame & Tuner Parts Section

(PV-1530)

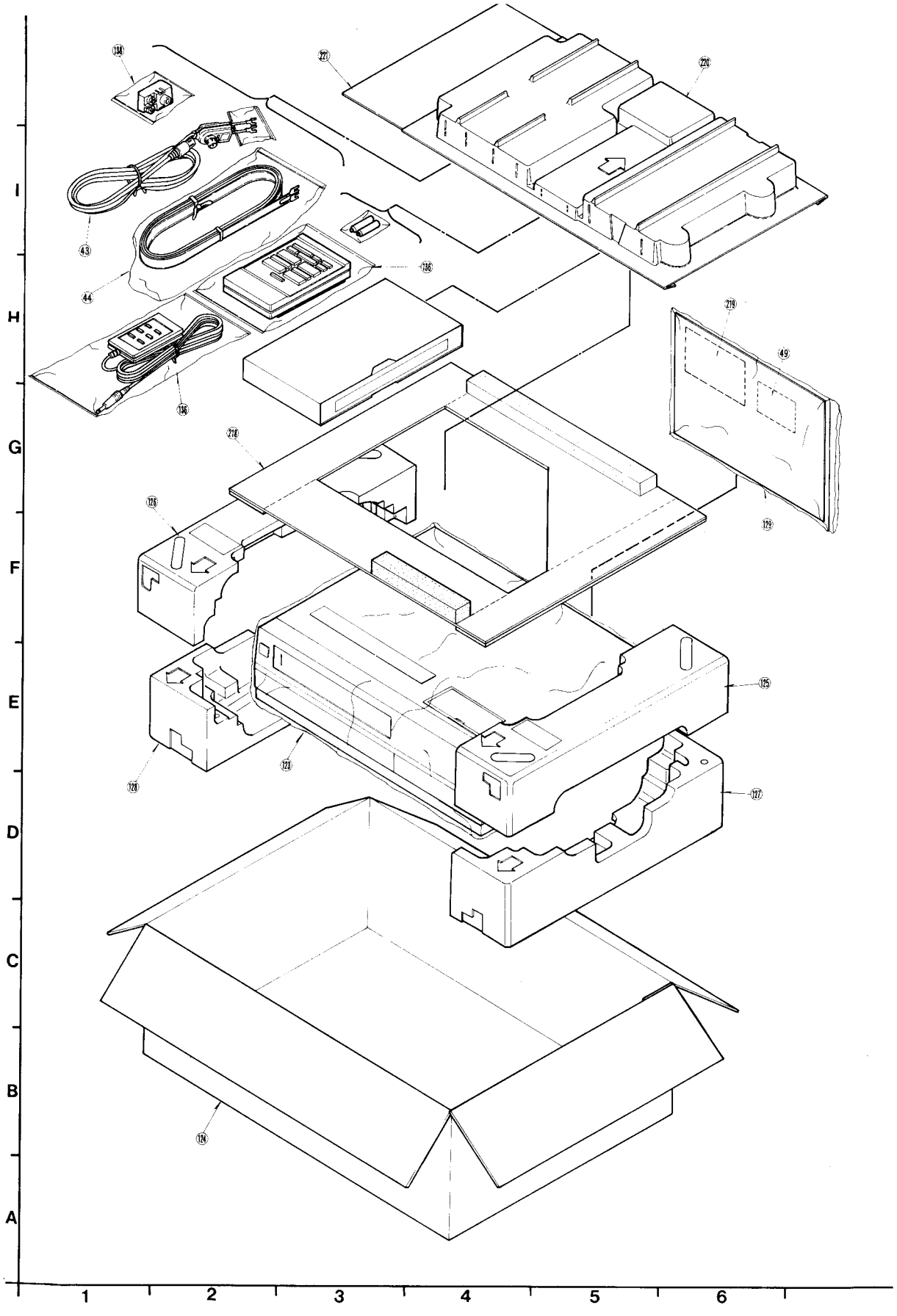
IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS,USE ONLY THE SPECIFIED PARTS.



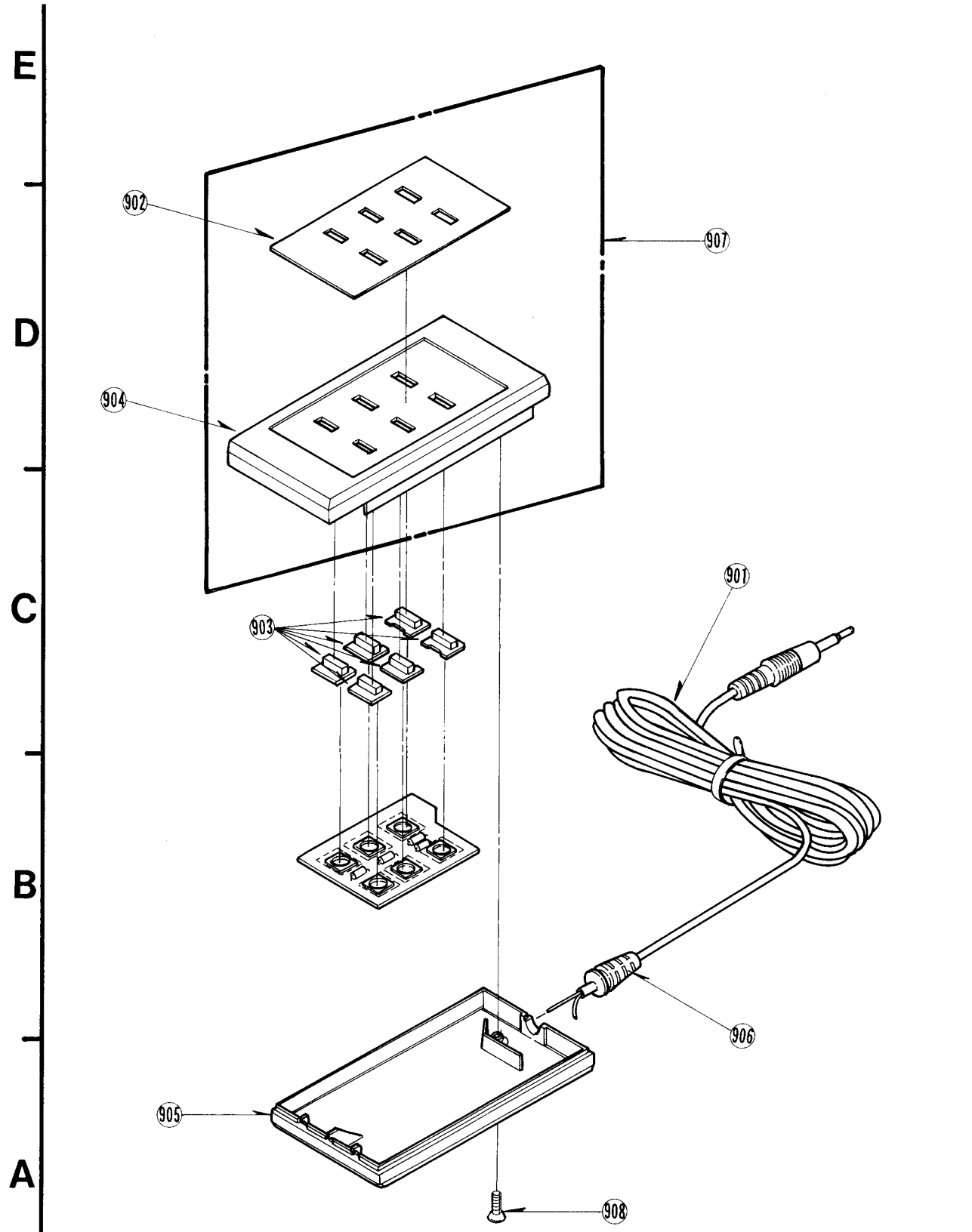
6 Casing Parts Section



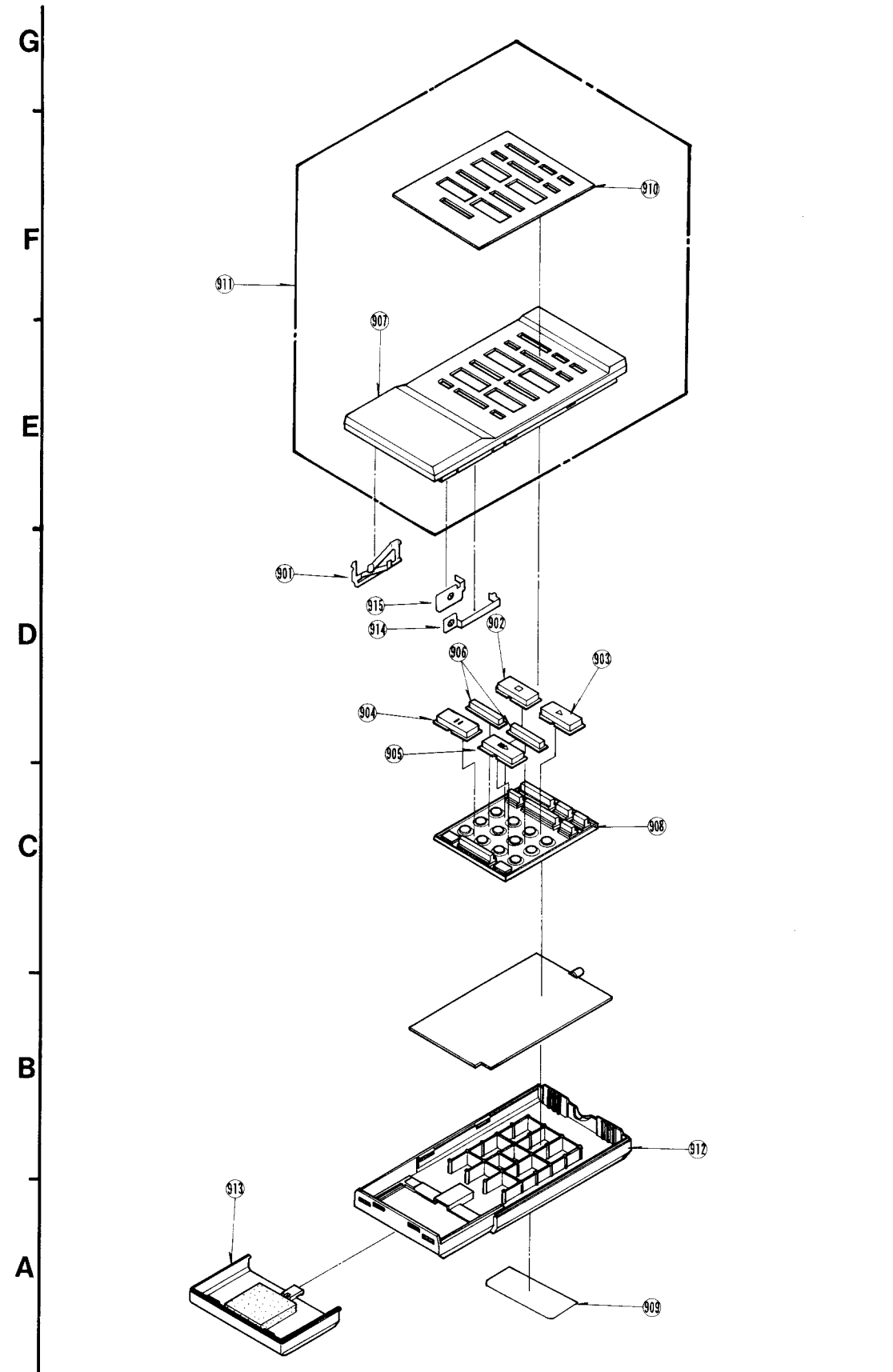
7 Packing Parts & Accessories Section



8 *Wired Transmitter Unit Section* (PV-1525)



⑨ *IR Wireless Transmitter Unit Section* (PV-1530)



MECHANICAL REPLACEMENT PARTS LIST

Model No. PV-1525 /PV-1530

Note: Be sure to make your orders of replacement parts according to this list.
(A)=PV-1525,(B)=PV-1530

Item No.	Drawing No.	Description	Pcs/ Set	Part No.	Remark
1	6	DOOR CLAMPER	1	TKK769906	
2	1	FASTENER	1	TYB-23M	
3	1	ERASE HEAD	1	VBS0027	
4	2	INTERMEDIATE GEAR -1	1	VDGS0038	
5	2	DRIVING GEAR	1	VDGS0039	
6	3	INTERMEDIATE GEAR -2	1	VDGS0040	
7	2	LOADING CAM GEAR	1	VDGS0041	
8	2	CHANGE GEAR	1	VDGS0042	
9	1	IDLER GEAR	1	VDGS0043	
10	1	INTERMEDIATE GEAR -A	1	VDGS0044	
11	3	PULLEY GEAR	1	VDGS0045	
12	1	INTERMEDIATE GEAR -B	1	VDGS0046	
13	2	KICK GEAR -1	1	VDGS0048	
14	2	RELEASE GEAR	1	VDGS0049	
15	2	KICK GEAR -2	1	VDGS0050	
16	4	WORM	1	VDGS0051	
17	4	MAIN SHAFT GEAR -R	1	VDGS0054	
18	1	CLUTCH PULLEY	1	VDPS0083	
19	4	WORM PULLEY	1	VDPS0088	
20	1	SUPPLY ROLLER	1	VDPS0091	
21	3	CAPSTAN BELT	1	VDVS0042	
22	3	LOADING BELT	1	VDVS0043	
23	4	LOADING BELT	1	VDVS0044	
24	1	D.D CYLINDER UNIT	1	VEGS0057	
25	3	F.G HEAD UNIT	1	VEHS0068	
				OR VEHS0069	
26	1	A/C HEAD UNIT	1	VEHS0088	(A)
26	1		1	VEHS0074	(B)
27	1	UPPER CYLINDER UNIT	1	VEHS0077	
28	1	LUG ASS'Y	1	VEKS1794	
29	4	CASSETTE LOADING MOTOR UNIT	1	VEMS0088	
30	3	CAPSTAN STATER UNIT	1	VEMS0089	
31	3	LOADING MOTOR UNIT	1	VEMS0086	(A)
31	3		1	VEMS0085	(B)
32	5	IR WIRELESS RECEIVING DETECTOR	1	VEQS0285	(B)
		UNIT		OR VEQS0293	
33					
34	2	MODE SELECT SWITCH	1	VESS0016	
35					
36					
37	5	TRACKING V.R PANEL	1	VGPS0716	(A)
37	5		1	VGPS0749	(B)
38	4	BLIND PANEL	1	VGPS0682	
39	6	TUNING DOOR DECORATION	1	VGPS0717	(A)
39	6		1	VGPS0823	(B)
40	5	TRACKING KNOB	3	VGTS0135	
41					
42					
43	7	VHF CONNECTING CABLE	1	VSQS0215	
44	7	TWIN LEAD CONNECTOR	1	VJA0102	
45					
46	5	TRACKING PANEL	1	VJJS0066	(A)
46	5		1	VJJS0067	(B)
47	3,5	CLAMPER	2	VJR3	
48	5	HINGE	3	VKCS0009	

Item No.	Drawing No.	Description	Pcs/ Set	Part No.	Remark
49	7	V -HOLD ADJ. TOOL	1	VXKS0365	
50	1	SHAFT HOLDER PLATE	2	VMAS0545	
51	3	TENSION REGULATOR PLATE	1	VMAS0875	
52	3	TENSION ANGLE	1	VMAS0876	
53	3	LOADING MOTOR BRACKET	1	VMAS0877	
54	2	GROUNDING PLATE	1	VMAS0883	
55	4	CASSETTE HOLDER	1	VMAS0898	
56					
57	4	CASSETTE COMPARTMENT TOP PLATE	1	VXAS0676	
58	4	SWITCH BRACKET	1	VMAS0906	
59	5	TOP COVER ANGLE -R	1	VMAS0932	
60					
61	5	TOP COVER SUPPORT ANGLE	1	VMAS0951	
62	5	P.B ANGLE	1	VMAS0952	
63	5	SIGNAL PROCESS C.B.A ANGLE	1	VMAS0953	
64	5	FRONT FRAME SUPPORT ANGLE	1	VMAS0954	
65	5	GROUNDING ANGLE	1	VMAS0955	
66	4	WORM WHEEL STOPPER	1	VMAS0986	
67	5	AUDIO C.B.A ANGLE	1	VMAS1007	(B)
68	4	CASSETTE HOLDER SPRING -L	1	VMAS0964	
69	4	CASSETTE HOLDER SPRING -R	1	VMAS0965	
70	1	SUPPLY INERTIA SPRING	1	VMBS0071	
71	1	POST SPRING -P,4	1	VMBS0288	
72	2	KICK SPRING	1	VMBS0330	
73	2	TENSION SPRING	1	VMBS0331	
74	4	SOFT BRAKE SPRING	1	VMBS0332	
75	2	SELECT GEAR LEVER SPRING	1	VMBS0333	
76	2	PRESSURE ROLLER SPRING	1	VMBS0334	
77	2	KICK LEVER SPRING	1	VMBS0336	
78	2	SUB LEVER SPRING	1	VMBS0337	
79	1	IDLER ARM SPRING	1	VMBS0339	
80	1	ADJUST SPRING	1	VMBS0425	
81	1	SOFT BRAKE SPRING -S	1	VMBS0341	
82	1	A/C HEAD SPRING	1	VMBS0342	
83	4	CASSETTE HOLDER GUIDE SPRING	2	VMBS0345	
84	4	WIPER GEAR SPRING	1	VMBS0348	
85	4	WIPER SPRING -L	1	VMBS0349	
86	4	BLIND SPRING	1	VMBS0350	
87	1	IDLER SPRING	1	VMBS0355	
88					
89	1	ERASE HEAD LEVER SPRING	1	VMBS0373	
90					
91	2	BRAKE ARM SPRING	1	VMBS0661	
92	1	ADJUST SPRING	1	VMB0404	
93	1	LOADING SPRING	2	VMB0669	
94	1	POST STOPPER	1	VMDS0031	
95	1	INERTIA ROLLER LIMITER	1	VMDS0063	
96	1	POST STOPPER	1	VMDS0199	
97	4	CASSETTE HOLDER GUIDE -R	1	VMDS0203	
98	4	CASSETTE HOLDER GUIDE -L	1	VMDS0204	
99	4	SLIDE -R	1	VMDS0205	
100	4	SLIDE -L	1	VMDS0206	
101	4	SIDE PLATE -L	1	VMDS0208	
102	4	SWITCH CAM	1	VMDS0209	
103	4	SWITCH PIECE	1	VMDS0236	
104	2	SUB LEVER CUSHION	1	VMDS0249	
105	3	OIL POOL	1	VMD0104	
106					

Item No.	Drawing No.	Description	Pcs/ Set	Part No.	Remark
107	1	IDLER ARM -A	1	VMLS0303	
108	1	CHANGE LEVER -B	1	VMLS0305	
109	1	SOFT BRAKE ARM -S	1	VMLS0306	
110	4	WIPER GEAR -R	1	VMLS0320	
111	4	WIPER GEAR -L	1	VMLS0321	
112	4	CASSETTE COMPARTMENT OPENER	1	VMLS0322	
		LEVER			
113	1	ERASE HEAD LEVER	1	VMLS0350	
114	1	LEVER SHAFT	1	VMSS0381	
115	4	WORM SHAFT	1	VMSS0394	
116	1	COLLAR	1	VMXS0035	
117	1	POST CAP -P.4	1	VMXS0129	
118	1	LIMITER SUPPORTER	1	VMXS0321	
119	1	SLEEVE	1	VMXS0370	
				OR VMXS0372	
120	3	THRUST SCREW	1	VMX0211	
121	3	OIL SEAL	1	VMX0251	
122	1	INERTIA ROLLER UPPER LIMITER	1	VNWS0002	
123	7	POLYETHYLENE BAG	1	VPFS0029	
124	7	PACKING CASE	1	VPGS0908	(A)
124	7		1	VPGS0916	(B)
125	7	RIGHT CUSHION -TOP	1	VPNS0157	
126	7	LEFT CUSHION -TOP	1	VPNS0158	
127	7	RIGHT CUSHION -BOTTOM	1	VPNS0159	
128	7	LEFT CUSHION -BOTTOM	1	VPNS0160	
129	7	FAN BAG	1	VQFS0633	(A)
129	7		1	VQFS0646	(B)
130	6	STICKER	1	VQLS1013	(A)
130	6		1	VQLS1023	(B)
131	6	BOTTOM CAUTION LABEL	1	VQLS1058	(A)
131	6		1	VQLS1051	(B)
132	5	GROUNDING PLATE	1	VSCS0476	(B)
133	5	GROUNDING ANGLE	1	VSCS0477	
134	1	SHIELD CASE	1	VSCS0514	
135	5	GROUNDING PLATE	1	VSCS0528	
136	7	WIRED TRANSMITTER UNIT	1	VSQS0314	(A)
136	7	IR WIRELESS TRANSMITTER UNIT	1	VSQS0262	(B)
137	5	TV DEMODULATOR UNIT SUPPORT	1	VMAS1035	
		ANGLE			
138	7	VHF ANTENNA ADAPTOR	1	VSQ0057	
139	1	ROLLER POST UNIT	2	VXAS0344	
				OR VXAS0562	
140	1	LOADING BASE 1 UNIT	1	VXAS0564	
141	1	SHAFT HOLDER BLOCK S UNIT	1	VXAS0565	
142	1	LOADING POST S UNIT	1	VXAS0566	
143	1	SHAFT HOLDER BLOCK T UNIT	1	VXAS0567	
144	1	LOADING POST T UNIT	1	VXAS0568	
145	2	MAIN LEVER UNIT	1	VXAS0570	
146	2	SUB LEVER UNIT	1	VXAS0572	
147	2	KICK BASE UNIT	1	VXAS0580	
148	4	CASSETTE HOLDER GUIDE R UNIT	1	VXAS0608	
149	4	CASSETTE HOLDER GUIDE L UNIT	1	VXAS0609	
150	4	CASSETTE HOLDER UNIT	1	VXAS0611	
151	4	CASSETTE GUIDE 1 UNIT	1	VXAS0614	
152	4	CASSETTE UP UNIT	1	VXAS0685	(A)
152	4		1	VXAS0686	(B)
153	4	SIDE PLATE -R	1	VXAS0620	
154	4	SWITCH ANGLE UNIT	1	VXAS0625	
155	1	CASSETTE OPENER ANGLE UNIT	1	VXAS0648	
156					

Item No.	Drawing No.	Description	Pcs/ Set	Part No.	Remark
157	5	TIMER BUTTON -A	1	VGUS0974	(B)
158	1	GROUNDING PLATE	1	VXBS0019	
159	3	HOUSING	1	VXDS0012	
160	4	RELEASE LEVER	1	VMLS0357	
161	5	CUSHION	2	VXGS0006	
162	1	F.F SLIDE LEVER UNIT	1	VXKS0339	
163	1	LOADING ARM R UNIT	1	VXLS0200	
164	1	LOADING ARM L UNIT	1	VXLS0201	
165	1	CHANGE LEVER -A	1	VXLS0267	
166	1	IDLER ARM -B	1	VXLS0268	
167	2	ARM LEVER	1	VXLS0271	
168	2	ARM LEVER UNIT	1	VXLS0272	
169	2	SECTOR GEAR UNIT	1	VXLS0273	
170	2	TENSION ARM UNIT	1	VXLS0276	
171	4	CASSETTE OPENER LEVER	1	VXLS0295	
172	4	WIPER GEAR R UNIT	1	VXLS0296	
173	4	WIPER GEAR L UNIT	1	VXLS0297	
174	2	PRESSURE ROLLER LEVER UNIT	1	VXLS0310	
175	1	IDLER FRAME UNIT	1	VXPS0116	
176	3	CAPSTAN ROTOR UNIT	1	VXPS0119	
177	1	LOADING GEAR UNIT	2	VXPS0120	
178	2	KICK GEAR UNIT	1	VXPS0121	
179	3	CAPSTAN PULLEY UNIT	1	VXPS0122	
180	1	CLUTCH GEAR UNIT	1	VXPS0124	
				OR VXPS0134	
181	4	WORM WHEEL UNIT	1	VXPS0128	
182	4	MAIN SHAFT	1	VXPS0129	
183	2	SUPPLY REEL TABLE UNIT	1	VXRS0016	
184	2	TAKEUP REEL TABLE UNIT	1	VXRS0017	
185					
186	2	BRAKE S UNIT	1	VXZS0055	
187	2	BRAKE T UNIT	1	VXZS0057	
188	2	TENSION BAND UNIT	1	VXZS0059	
189	4	SOFT BRAKE T UNIT	1	VXZS0062	
190	6	BOTTOM PANEL UNIT	1	VYFS0055	(A)
190	6		1	VYFS0057	(B)
191	6	TUNING DOOR UNIT	1	VYPS1930	(A)
191	6		1	VYPS2135	(B)
192	6	FRONT PANEL 1 UNIT	1	VYPS2090	(A)
192	6		1	VYPS2092	(B)
193	6	TOP COVER UNIT	1	VYPS2141	(A)
193	6		1	VYPS2143	(B)
194	1,3,4	CLAMPER	10	VZFS0006	
195	1	RETAINING RING C-TYPE 4	4	XUEV4FP	
196	5	FILTER PLATE	1	VGQS0294	(B)
197	5	SHIELD CASE	1	VSCS0309	(B)
198	5	SHIELD CASE	1	VSCS0310	(B)
199	4	CASSETTE ANGLE -R	1	VMAS0907	
200	4	CASSETTE ANGLE -L	1	VMAS0908	
201	6	OPERATION BUTTON -EJECT	1	VGUS0689	
202	6	OPERATION BUTTON -POWER	2	VGUS0690	
203	6	OPERATION BUTTON -REWIND	1	VGUS0691	
204	6	OPERATION BUTTON -PLAY	1	VGUS0692	
205	6	OPERATION BUTTON -F.F	1	VGUS0693	
206	6	OPERATION BUTTON -PLAY	1	VGUS0694	
207	6	OPERATION BUTTON -PAUSE	1	VGUS0695	
208	6	OPERATION BUTTON -STOP	1	VGUS0696	
209	6	OPERATION BUTTON -SLOW	1	VGUS0697	
210	6	COUNTER RESET BUTTON	1	VGUS0698	

Item No.	Drawing No.	Description	Pcs/ Set	Part No.	Remark
211	6	VHF CHANNEL FILM	1	VGKS0550	
212	6	FILM HOLDER	1	VGQS0242	
213	6	CHANNEL SELECT BUTTON -A	7	VGUS0742	
214	6	CHANNEL SELECT BUTTON -B	7	VGUS0743	
215	5	TIMER BUTTON	1	VGUS0699	
216	5	TIMER BUTTON -B	2	VGUS0864	
217	2	KICK LEVER 1 UNIT	1	VXLS0275	
218	7	TOP PAD	1	VPGS1051	
219	7	UHF CHANNEL FILM	1	VGKS0683	
220	7	ACCESSORY CASE	1	VPGS0379	
221	7	ACCESSORY CASE PAD	1	VPGS0380	
222	4	RELEASE SPRING	1	VMBS0418	
223	3	CLAMPER	2	PEC-034-0	
224	2	P5 ARM UNIT	1	VXLS0302	
225	2	P5 IDLER LEVER	1	VMLS0358	
226	6	OPERATION BUTTON SPRING	8	VMBS0256	
227	6	OPERATION BUTTON SPRING	2	VMBS0371	
228	6	TUNING CAUTION LABEL	1	VQLS0891	
229	6	OPERATION BUTTON PANEL -B	1	VYPS1876	
230	6	TIMER DOOR UNIT	1	VYPS2095	(A)
230	6		1	VYPS2096	(B)
231	6	OPERATION PANEL	1	VYPS2098	(A)
231	6		1	VYPS2100	(B)
232	5	TIMER BRACKET UNIT	1	VYPS2292	(A)
232	5		1	VYPS2293	(B)
233	6	FILM HOLDER UNIT	1	VYQS0027	
234	5	GROUNDING ANGLE	1	VMAS1051	
235	5	CUSHION	1	VMGS0054	
236					
237					
238					
239					
240					
241	5	CUSHION	1	VMGS0036	
242	5	CLAMPER	1	KEX-004	
243	5	CUSHION	1	VMGS0055	
401					
402					
403	5	TUNING V.R CASE DECORATION	1	VGNS0794	
404	5	SLIDE SWITCH KNOB -B	1	VGTS0118	
405	6	SCREW	2	VHDS0011	
406	1	SCREW	3	VHDS0016	
407	1	LOCK SCREW	2	VHDS0024	
				OR VHDS0052	
408	1	SCREW WITH WASHER	2	VHDS0032	
409	1	ADJUST SCREW	1	VHDS0041	
410	1	SCREW	1	VHDS0045	
411	1	SCREW	1	VHDS0057	
412	4	SCREW	2	VHDS0061	
413	5	SCREW	1	VHDS0062	
414	1	ADJUST NUT -3	1	VHNS0019	
				OR VHNS0023	
415	1	IDLER ANGLE	1	VMAS0872	
416	1	CHANNEL LEVER SPRING	1	VMBS0424	
417	2	SLIDE WASHER	3	VMXS0050	

Item No.	Drawing No.	Description	Pcs/ Set	Part No.	Remark
418	4	WASHER	2	VMXS0098	
419	2	SLIDE WASHER F	3	VMXS0109	
420	2	WASHER	1	VMXS0335	*
421	1,2	CUT WASHER	7	VMXS0336 *	
422	2	CUT WASHER	1	VMXS0342 *	
423	3	CAPSTAN THRUST WASHER	1	VMX0265	
424	5	M3 NUT	1	XNG3	
425	1	M3 NUT	2	XNG3E	
426	1	M3 NUT	1	XNG3EZU	
427	1	WASHER 5	1	XNG5E	
428	6	BIND SCREW 4X12	2	XSB4+12KS	
429	4	TAPPING SCREW 2.6X6	2	XTN26+6	
430					
431	1	SCREW	1	VHDS0068	
				OR XSN3D10F	
432	5	TAPPING SCREW 3X10	1	XTN3+10FUS	
433	1	TAPPING SCREW 2.6X6	1	XTV26+6F	
434	4	TAPPING SCREW 2.6X6	2	XTV26+6G	
435	5	TAPPING SCREW 3X10	2	XTV3+10AR	
436	6	TAPPING SCREW 3X12	6	XTV3+12AK	
437	5	TAPPING SCREW 3X12	10	XTV3+12AR	(A)
437	5		12	XTV3+12AR	(B)
438	3	TAPPING SCREW 3X15	1	XTV3+15F	
439	6	TAPPING SCREW 3X25	3	XTV3+25AK	
440	5	TAPPING SCREW 3X8	8	XTV3+8B	
441	5	TAPPING SCREW 3X6	1	XTV3+6	
442	1,4	TAPPING SCREW 3X6	2	XTV3+6F	
443	5	TAPPING SCREW 3X8	5	XTV3+8	
444	5	TAPPING SCREW 3X8	2	XTV3+8AR	
445					
446	1,2,3,4	TAPPING SCREW 3X8	29	XTV3+8F	
447	4,5	TAPPING SCREW 3X6	6	XTV3+6FRS	
448	4	TAPPING SCREW 3X8	4	XTV3+8G	
449	4	TAPPING SCREW 2.6X8	4	XTW26+8P	
450	1	RETAINING RING E-TYPE 1.5	2	XUC15FP	
451	1,2	RETAINING RING E-TYPE 2.5	4	XUC25FP	
452	2,3	RETAINING RING C-TYPE 3	8	XUEV3VW	
453	1,2,4	RETAINING RING C-TYPE 4	12	XUEV4VW	
454	1	POLY SLIDER WASHER 2	1	XWGV2D5G	
455	1	POLY SLIDER WASHER 3	1	XWGV3D12G	
456	1,2	POLY SLIDER WASHER 3	4	XWGV3D54G	
457	1	WASHER 5	1	XWG5J12	
458	2	POLY SLIDER WASHER 3	1	XWXV3A54	(t=0.25)
459	2	POLY SLIDER WASHER 3	1	XWXV3A8	(t=0.25)
460	1,2,3	POLY SLIDER WASHER 3	11	XWXV3D54	(t=0.5)
461	2	POLY SLIDER WASHER 3	1	XWXV3D8	(t=0.5)
462	2	POLY SLIDER WASHER 3	1	XWXV3Z54	(t=0.13)
463	2	POLY SLIDER WASHER 3	1	XWXV3Z8	(t=0.13)
464	3	POLY SLIDER WASHER 3	1	XWXV35D6	
465	2	POLY SLIDER WASHER 4	2	XWXV4D11	
466	1,2	POLY SLIDER WASHER 4	6	XWXV4D9	
467	1	SCREW WITH WASHER 2.6X8	1	XYC26+CJ8	
468	3	SCREW WITH WASHER 3X8	2	XYC3+FF8	
469	4	SCREW WITH WASHER 2.6X8	1	XYE26+FJ8	
470	2	SCREW WITH WASHER 3X10	2	XYE3+FF10	
471	2	SCREW WITH WASHER 3X8	1	XYE3+FF8	
472	1	SCREW WITH WASHER 3X8	1	XYNV3+K8	
473	4	SCREW WITH WASHER 2X10	2	XYN2+F10	
474	3	SCREW WITH WASHER 2.6X33	2	XYN26+C33	

* This cut washer is not reuseable. If removed, reinstall a new one.

Item No.	Drawing No.	Description	Pcs/ Set	Part No.	Remark
475	1	SCREW WITH WASHER 3X4	2	XYN3+C4	
476	1	SCREW WITH WASHER 3X12	2	XYN3+F12	
477	1	SCREW WITH WASHER 3X16	2	XYN3+F16	
				OR XYN3+F18	
478	2,3	SCREW WITH WASHER 3X8	2	XYN3+F8	
479	2	POLY SLIDER WASHER 3	1	XWXV3D65	
				OR XWXV3D7	
480	2	M3 NUT	1	VHD0045	
				OR VHNS0015	
481	2	POLY SLIDER WASHER 6	1	XWXV6F9	
482	1	CUT WASHER	1	VMXS0376	
				OR XTV3+5F	
483	5	GROUNDING PLATE	1	VSCS0408	
		(PV-1525)			
901	8	REMOTE CONTROL CABLE	1	VECS0120	
902	8	REMOTE CONTROL CASE DECORATION	1	VGKS0712	
903	8	REMOTE CONTROL BUTTON	6	VGUS0948	
904	8	REMOTE CONTROL CASE -BOTTOM	1	VKMS0113	
905	8	REMOTE CONTROL CASE -TOP	1	VKMS0066	
906	8	BUSHING	1	VVRS0017	
907	8	REMOTE CONTROL CASE TOP UNIT	1	VYBS0140	
908	8	TAPPING SCREW 2.6X10	1	XTS26+10BFZ	
		(PV-1530)			
901	9	ELECTRODE PLATE -COMMON	1	UR52TD101	
902	9	OPERATION BUTTON -STOP	1	UR56BT76	
903	9	OPERATION BUTTON -PLAY	1	UR56BT77	
904	9	OPERATION BUTTON	1	UR56BT78	
		-PAUSE/STILL			
905	9	OPERATION BUTTON -FADV	1	UR56BT79	
906	9	OPERATION BUTTON -FF/REWIND	2	UR56BT80	
907	9	TOP CASE	1	UR56CS69	
908	9	RUBBER PLATE FOR CONTACT	1	UR56CT72A	
909	9	PART NO PLATE	1	UR56LB86	
910	9	TOP CASE DECORATION	1	UR56PP81	
911	9	TOP CASE UNIT	1	UR56VCS38	
912	9	BOTTOM CASE UNIT	1	UR56VCS39	
913	9	BATTERY COVER UNIT	1	UR56VEC37	
914	9	ELECTRODE PLATE -POSITIVE	1	UR57TD74	
915	9	ELECTRODE PLATE -NEGATIVE	1	UR57TD75	
		SERVICING FIXTURES & TOOLS			
		VHS ALIGNMENT TAPE		VFMS0001H6	
		DIAL TORQUE GAUGE		VFK0133	
		PLASTIC CLAMPER		VFK0180	
		ADAPTOR FOR VFK0133		VFK0134	
		FINE ADJ. SCREWDRIVER		VFK0136	
		(for 3mmφ Long Shaft)			
		POST ADJ. SCREWDRIVER		VFK0137	

Item No.	Drawing No.	Description	Pcs/ Set	Part No.	Remark
		POST ADJ. PLATE		VFKS0010	
		REEL TABLE HEIGHT FIXTURE		VFKS0009	
		TENSION POST ADJ. PLATE		VFKS0002	
		H-POSITION ADJ. FIXTURE		VFKS0003	
		V - HOLD ADJ. TOOL		VFKS0031	
		CASSETTE HOLDER FIXTURE		VFKS0004	
		V-STOPPER ADJ. FIXTURE		VFKS0029	
		RETAINING RING REMOVER		VFK0144	
		(for 3mmφ)			
		RETAINING RING REMOVER		VFK0145	
		(for 4mmφ)			
		HEAD CLEANING STICK		VFK27	
		MOLYTONE GREASE		MOR265	
		LOCK SCREW WRENCH		VFKS0032	

ELECTRICAL REPLACEMENT PARTS LIST

Model No. PV-1525 /PV-1530

Special Note:
All integrated circuits and many other semiconductor devices are electrostatically sensitive and therefore require the special handling techniques described under the "Electrostatically Sensitive (ES) Devices" section of this service manual.

Note:
1. Be sure to make your orders of replacement parts according to this list.
2. IMPORTANT SAFETY NOTICE
   Components identified by the sign ⚠ have special characteristics important for safety. When replacing any of these components, use only the specified parts.
3. Unless otherwise specified;
   All resistors are in OHMS (Ω), 1/4W, ±5%, carbon, K=1,000Ω, M=1,000KΩ.
   All capacitors are in MICROFARADS (UF), P=UUF, ±10%.
   All coils are in MICROHENRIES (UH), M=10³U, ±10%.
4. C.B.A: Circuit Board Assembly.
5. P.C.B: Print Circuit Board.
   (A)=PV-1525,(B)=PV-1530

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
			PRINTED CIRCUIT BOARD ASSEMBLY		
		VEPS0250H1	SERVO/AUDIO/SYSTEM CONTROL	1	(A)
			C.B.A		
		VEPS0249B1	SERVO/SUB AUDIO/SYSTEM CONTROL	1	(B)
			C.B.A		
		VEPS0344B2	SIGNAL PROCESS C.B.A	1	(A)
		VEPS0344B1		1	(B)
		VEPS0135F1	POWER SUPPLY C.B.A	1	(A)
		VEPS0135E2		1	(B)
		VEPS0422A1	AUDIO C.B.A	1	(B)
		VEPS06110A1	OPERATION C.B.A	1	
		VEPS07100C1	CHANNEL SELECT C.B.A	1	
		VEPS07123A1	PROGRAMMABLE TIMER C.B.A	1	(A)
		VEPS07123E1		1	(B)
		VEPS0243C1	CAPSTAN MOTOR DRIVE C.B.A	1	
		VEPS0508A1	HEAD AMP UNIT	1	
		VEPS0337A	LUMINANCE C.B.A	1	
		VEPS0806A	CHROMINANCE C.B.A	1	
		VEQS0257	TV DEMODULATOR UNIT	1	
			SERVO/AUDIO/SYSTEM CONTROL		(A)
			C.B.A		
			INTEGRATED CIRCUITS		
IC2001		AN6359		1	
		OR AN6359N			
IC2002		MN6168VIB		1	
IC2003		AN6356N		1	
IC2004		AN6387		1	
IC2005		UPD6110CA		1	
IC2006,2007		AN1358		2	
		OR AN6562			
		OR HA17358			
		OR UPC1358C			
IC4001		UPC1520CA		1	
IC4002		TA7361P		1	

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
IC4701		AN6558		1	
		OR BA4558			
IC6001		MN15846VRC		1	
IC6002		AN6914		1	
		OR HA17393			
		OR UPC393			
IC6004,6005		BA6209U		2	
			TRANSISTORS		
Q2001,2002		2SA937M(R)		2	
		OR			
		2SD641(Q,R,S)			
Q2003,2004		2SC2021M(R)		2	
		OR			
		2SD636(Q,R,S)			
Q2005,2006		2SA937M(R)		2	
		OR			
		2SD641(Q,R,S)			
Q2007-2011		2SC2021M(R)		5	
		OR			
		2SD636(Q,R,S)			
Q2012		2SA937M(R)		1	
		OR			
		2SD641(Q,R,S)			
Q2013		2SD1266		1	
		OR 2SD856			
Q2014		2SA937M(R)		1	
		OR			
		2SD641(Q,R,S)			
Q2015		2SC2021M(R)		1	
		OR			
		2SD636(Q,R,S)			
Q3201,3202		2SC2021M(Q,R)		2	
		OR 2SD636(Q,R)			
Q4001		2SD636(Q,R,S)		1	
Q4002		2SB641(Q,R,S)		1	
Q4003		2SD637(Q,R,S)		1	
Q4004		2SD636(Q,R,S)		1	
Q4006,4007		DTC143A		2	
Q4701		2SD636(Q,R,S)		1	
Q4702		2SB641(Q,R,S)		1	
Q4703		2SD655(E,F)		1	
		OR 2SD661(S,T)			
Q6003-6005		2SC2021M(R)		3	
		OR			
		2SD636(Q,R,S)			
Q6006		2SD638(Q,R,S)		1	
Q6007		2SC2021M(R)		1	
		OR			
		2SD636(Q,R,S)			
Q6010-6012		2SA937M(R)		3	
		OR			
		2SB641(Q,R,S)			
Q6014		2SC2021M(R)		1	
		OR			
		2SD636(Q,R,S)			
Q6020		2SC2021M(R)		1	
		OR			
		2SD636(Q,R,S)			
Q6021		2SA937M(R)		1	
		OR			
		2SB641(Q,R,S)			
Q6199		2SC2021M(R)		1	
		OR			
		2SD636(Q,R,S)			

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
			DIODES		
D2001-2007		MA165		7	
		OR 1SS119			
D2009-2019		MA165		11	
		OR 1SS119			
D2024,2025		MA165		2	
		OR 1SS119			
D3201-3204		EQA02-13	ZENER	4	
		OR MA4130	ZENER		
		OR RD13EB	ZENER		
D4701		MA165		1	
D4702		MA4130	ZENER	1	
D6006-6023		MA165		18	
		OR 1SS119			
D6027		MA165		1	
		OR 1SS119			
D6030-6039		MA165		10	
		OR 1SS119			
D6041		MA165		1	
		OR 1SS119			
D6199		MA165		1	
		OR 1SS119			
			RESISTORS		
RX6001		EXPBP84223K	COMPLEX COMPONENT 22K +-10%	1	
R2001		ERDS2TJ223	22K	1	
R2002		ERDS2TJ334	330K	1	
R2003		ERDS2TJ272	2.7K	1	
R2004		ERDS2TJ473	47K	1	
R2006		ERDS2TJ153	15K	1	
R2007		ERDS2TJ472	4.7K	1	
R2008		ERDS2TJ153	15K	1	
R2009-2011		ERDS2TJ103	10K	3	
R2012		ERDS2TJ153	15K	1	
R2013		ERDS2TJ105	1M	1	
R2014		ERDS2TJ333	33K	1	
R2015		ERDS2TJ102	1K	1	
R2016		ERDS2TJ472	4.7K	1	
R2017		ERDS2TJ103	10K	1	
R2018,2019		ERDS2TJ332	3.3K	2	
R2020-2022		ERDS2TJ470	47	3	
R2023		ERQS2TKG1801	PRECISION METAL FILM 1.8K +-2%	1	
R2024		ERQS2TKG6801	PRECISION METAL FILM 6.8K +-2%	1	
R2025	⚠	RRX12MJR56	METAL OXIDE 1/2W 0.56	1	
	⚠	OR RRX12SJR56	METAL OXIDE 1/2W 0.56		
R2026		ERDS2TJ104	100K	1	
R2027		ERDS2TJ124	120K	1	
R2028		ERDS2TJ104	100K	1	
R2029		ERDS2TJ333	33K	1	
R2030		ERDS2TJ124	120K	1	
R2031		ERDS2TJ272	2.7K	1	
R2032,2033		ERDS2TJ154	150K	2	
R2034		ERDS2TJ274	270K	1	
R2035		ERDS2TJ473	47K	1	
R2036		ERDS2TJ822	8.2K	1	
R2037		ERQS2TKG6801	PRECISION METAL FILM 6.8K +-2%	1	
R2038,2039		ERQS2TKG1002	PRECISION METAL FILM 10K +-2%	2	
R2040		ERQS2TKG1202	PRECISION METAL FILM 12K +-2%	1	
R2041		ERDS2TJ154	150K	1	
R2042		ERDS2TJ104	100K	1	
R2043		ERDS2TJ682	6.8K	1	
R2044,2045		ERDS2TJ104	100K	2	
R2046		ERDS2TJ563	56K	1	
R2047		ERDS2TJ104	100K	1	
R2048		ERDS2TJ393	39K	1	
R2049,2050		ERDS2TJ104	100K	2	
R2051		ERDS2TJ563	56K	1	
R2052-2054		ERDS2TJ393	39K	3	
R2055		ERQS2TKG1003	PRECISION METAL FILM 100K +-2%	1	
R2056		ERDS2TJ103	10K	1	

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
R2057		ERQS2TKG1202	PRECISION METAL FILM 12K +-2%	1	
R2058		ERQS2TKG1602	PRECISION METAL FILM 16K +-2%	1	
R2059		ERDS2TJ224	220K	1	
R2060		ERDS2TJ103	10K	1	
R2061		EVJFFAF15B15	VARIABLE TRACKING 100K	1	
R2064		ERDS2TJ562	5.6K	1	
R2065		ERDS2TJ104	100K	1	
R2066		EVNE4AA00B54	VARIABLE 50K	1	
R2067,2068		ERDS2TJ102	1K	2	
R2069		EVN38CA00B15	VARIABLE 100K	1	
R2070,2071		ERDS2TJ104	100K	2	
R2072		EVJFPAF15B15	VARIABLE SLOW TRACKING 100K	1	
R2073		ERDS2TJ222	2.2K	1	
R2074		ERDS2TJ181	180	1	
R2075		ERDS2TJ223	22K	1	
R2076		ERDS2TJ474	470K	1	
R2077		ERDS2TJ563	56K	1	
R2078,2079		ERDS2TJ104	100K	2	
R2080		ERDS2TJ333	33K	1	
R2081		ERDS2TJ103	10K	1	
R2082		ERDS2TJ223	22K	1	
R2083,2084		ERDS2TJ823	82K	2	
R2085		ERDS2TJ332	3.3K	1	
R2086		ERDS2TJ103	10K	1	
R2087		ERDS2TJ333	33K	1	
R2088,2089		ERDS2TJ104	100K	2	
R2090		ERDS2TJ184	180K	1	
R2091		ERDS2TJ104	100K	1	
R2092		ERDS2TJ684	680K	1	
R2093		ERDS2TJ224	220K	1	
R2094		ERDS2TJ223	22K	1	
R2096		ERDS2TJ103	10K	1	
R2097		EVN38CA00B54	VARIABLE 50K	1	
R2098		EVN38CA00B15	VARIABLE 100K	1	
R2099,2100		EVLS3MA00B15	VARIABLE 100K	2	
R2101		ERDS2TJ223	22K	1	
R2102		ERDS2TJ273	27K	1	
R2103		ERDS2TJ154	150K	1	
R2104		ERDS2TJ472	4.7K	1	
R2105,2106		ERDS2TJ103	10K	2	
R2107		ERDS2TJ473	47K	1	
R2109		ERDS2TJ822	8.2K	1	
R2114		ERDS2TJ103	10K	1	
R2121		ERDS2TJ473	47K	1	
R2122		ERDS2TJ103	10K	1	
R2124		ERDS2TJ103	10K	1	
R2125		ERDS2TJ222	2.2K	1	
R3201		ERDS2TJ122	1.2K	1	
R3202		ERDS2TJ103	10K	1	
R3203		ERDS2TJ820	82	1	
R3209		EVJFFAF15B24	VARIABLE 20K	1	
R3210		ERDS2TJ123	12K	1	
R3211		ERDS2TJ472	4.7K	1	
R4001		ERDS2TJ333	33K	1	
R4002		ERDS2TJ124	120K	1	
R4003		ERDS2TJ101	100	1	
R4004		EVNE4AA00B53	VARIABLE 5K	1	
R4005		ERDS2TJ102	1K	1	
R4007		EVNE4AA00B23	VARIABLE 2K	1	
R4008		ERDS2TJ472	4.7K	1	
R4009		ERDS2TJ563	56K	1	
R4010		ERDS2TJ332	3.3K	1	
R4011,4012		ERDS2TJ223	22K	2	
R4013		ERDS2TJ221	220	1	
R4014		ERDS2TJ182	1.8K	1	
R4015		ERDS2TJ225	2.2M	1	
R4016		ERDS2TJ183	18K	1	
R4017		ERDS2TJ223	22K	1	
R4018		ERDS2TJ470	47	1	
R4019		ERDS2TJ221	220	1	

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
R4020		ERDS2TJ331	330	1	
R4021		ERDS2TJ470	47	1	
R4022		ERDS2TJ182	1.8K	1	
R4023		ERDS2TJ332	3.3K	1	
R4024		ERDS2TJ562	5.6K	1	
R4025		EVN38CA00B15	VARIABLE 100K	1	
R4026		ERDS2TJ223	22K	1	
R4027		ERDS2TJ470	47	1	
R4028		ERDS2TJ103	10K	1	
R4031		ERDS2TJ102	1K	1	
R4032		ERDS2TJ560	56	1	
R4034		ERDS2TJ563	56K	1	
R4035		ERDS2TJ222	2.2K	1	
R4047		ERDS2TJ101	100	1	
R4048		ERDS2TJ561	560	1	
R4701		ERDS2TJ182	1.8K	1	
R4702,4703		ERDS2TJ103	10K	2	
R4704		ERDS2TJ105	1M	1	
R4705		ERDS2TJ101	100	1	
R4706		ERDS2TJ104	100K	1	
R4707		ERDS2TJ183	18K	1	
R4708		ERDS2TJ103	10K	1	
R4709		ERDS2TJ473	47K	1	
R4710		ERDS2TJ563	56K	1	
R4711		ERDS2TJ562	5.6K	1	
R4712		ERDS2TJ473	47K	1	
R4713		ERDS2TJ563	56K	1	
R4714		ERDS2TJ182	1.8K	1	
R4715		ERDS2TJ473	47K	1	
R4716		ERDS2TJ392	3.9K	1	
R6008,6009		ERDS2TJ223	22K	2	
R6010		ERDS2TJ472	4.7K	1	
R6011		ERDS2TJ474	470K	1	
R6012		ERDS2TJ472	4.7K	1	
R6013,6014		ERDS2TJ104	100K	2	
R6015		ERDS2TJ472	4.7K	1	
R6017		ERDS2TJ223	22K	1	
R6018		ERDS2TJ562	5.6K	1	
R6019		ERDS2TJ682	6.8K	1	
R6021		ERDS2TJ824	820K	1	
R6022		ERDS2TJ102	1K	1	
R6023		ERDS2TJ273	27K	1	
R6024		ERDS2TJ123	12K	1	
R6025		ERDS2TJ102	1K	1	
R6026		ERDS2TJ223	22K	1	
R6027		ERDS2TJ563	56K	1	
R6028		ERDS2TJ102	1K	1	
R6029,6030		ERDS2TJ152	1.5K	2	
R6031		ERDS1TJ101	1/2W 100	1	
R6032-6034		ERDS2TJ222	2.2K	3	
R6035		ERDS2TJ333	33K	1	
R6036		ERDS2TJ224	220K	1	
R6037		ERDS2TJ682	6.8K	1	
R6038		ERDS2TJ223	22K	1	
R6039-6041		ERDS2TJ682	6.8K	3	
R6042-6044		ERDS2TJ223	22K	3	
R6045		ERDS2TJ332	3.3K	1	
R6046		ERDS2TJ154	150K	1	
R6047		ERDS2TJ224	220K	1	
R6048,6049		ERDS2TJ223	22K	2	
R6050		ER0S2TKG4701	PRECISION METAL FILM 4.7K +-2%	1	
R6051		ERDS2TJ393	39K	1	
R6052		ERDS2TJ392	3.9K	1	
R6053		ERDS2TJ222	2.2K	1	
R6054		ERDS2TJ392	3.9K	1	
R6055		ERDS2TJ683	68K	1	
R6056-6062		ERDS2TJ682	6.8K	7	
R6063		ERDS2TJ223	22K	1	
R6064		ERDS2TJ471	470	1	
R6065		ERDS2TJ153	15K	1	

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
R6066		ERDS2TJ472	4.7K	1	
R6067		ERDS2TJ152	1.5K	1	
R6068,6069		ERDS2TJ392	3.9K	2	
R6077,6078		ERDS2TJ102	1K	2	
R6079		ERDS2TJ103	10K	1	
R6080,6081		ERDS2TJ472	4.7K	2	
R6082,6083		ERDS2TJ103	10K	2	
R6084,6085		ERDS2TJ472	4.7K	2	
R6087		ERDS2TJ104	100K	1	
R6088		ERDS2TJ472	4.7K	1	
R6089		ERDS2TJ102	1K	1	
R6091		ERDS2TJ102	1K	1	
R6092		ERDS2TJ103	10K	1	
R6093,6094		ERDS2TJ102	1K	2	
R6095		ERDS2TJ472	4.7K	1	
R6096	⚠	ERDS1TJ2R7	1/2W 2.7	1	
R6097		ERDS2TJ102	1K	1	
R6098		ERDS2TJ104	100K	1	
R6099		ERDS2TJ333	33K	1	
R6103,6104		ERDS2TJ472	4.7K	2	
R6108		ERDS2TJ274	270K	1	
R6109		ERDS2TJ333	33K	1	
R6110		ER0S2TKG2202	PRECISION METAL FILM 22K +-2%	1	
R6111		ERDS2TJ102	1K	1	
R6116,6117		ERDS2TJ102	1K	2	
R6120		ERDS2TJ333	33K	1	
R6121,6122		ERDS2TJ562	5.6K	2	
R6123,6124		ERDS2TJ223	22K	2	
R6126,6127		ERDS2TJ562	5.6K	2	
R6128		ERDS2TJ332	3.3K	1	
R6133		ERDS2TJ103	10K	1	
R6197		ERDS2TJ562	5.6K	1	
R6198,6199		ERDS2TJ104	100K	2	
R6201-6203		ERDS2TJ102	1K	3	
			CAPACITORS		
C2001		ECEA1HS010	ELECTROLYTIC 50V 1	1	
		OR ECEA1HU010	ELECTROLYTIC 50V 1		
C2002		VCYSARC103NX	CERAMIC 16V 0.01 +-30%	1	
C2003		ECEA1EN3R3S	ELECTROLYTIC 25V 3.3	1	
C2004		ECQM1H103KV	POLYESTER 50V 0.01	1	
		OR ECQM1H103KZ	POLYESTER 50V 0.01		
C2005		ECEA1CS100	ELECTROLYTIC 16V 10	1	
		OR ECEA1CU100	ELECTROLYTIC 16V 10		
C2006		ECEA1HS010	ELECTROLYTIC 50V 1	1	
		OR ECEA1HU010	ELECTROLYTIC 50V 1		
C2007		ECEA1HN010S	ELECTROLYTIC 50V 1	1	
C2008		ECEA1HS0R1	ELECTROLYTIC 50V 0.1	1	
		OR ECEA1HU0R1	ELECTROLYTIC 50V 0.1		
C2009		VCYSARC222NX	CERAMIC 16V 0.0022 +-30%	1	
C2010		VCYW1E152KX	CERAMIC 25V 0.0015	1	
C2011		ECEA1HS2R2	ELECTROLYTIC 50V 2.2	1	
		OR ECEA1HU2R2	ELECTROLYTIC 50V 2.2		
C2012		ECEA1HN2R2S	ELECTROLYTIC 50V 2.2	1	
C2013		ECEA1CS101	ELECTROLYTIC 16V 100	1	
		OR ECEA1CU101	ELECTROLYTIC 16V 100		
C2014		VCYSARC682NX	CERAMIC 16V 0.0068 +-30%	1	
C2015		ECEA1CS221	ELECTROLYTIC 16V 220	1	
		OR ECEA1CU221	ELECTROLYTIC 16V 220		
C2016,2017		ECEA1HN2R2S	ELECTROLYTIC 50V 2.2	2	
C2018		VCYSARH102KB	CERAMIC 50V 0.001	1	
C2019		ECEA1ES3R3	ELECTROLYTIC 25V 3.3	1	
		OR ECEA1EU3R3	ELECTROLYTIC 25V 3.3		
C2020		ECQM1H123KV	POLYESTER 50V 0.012	1	
		OR ECQM1H123KZ	POLYESTER 50V 0.012		

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
C2021		ECEA1HSR22	ELECTROLYTIC 50V 0.22	1	
		OR ECEA1HUR22	ELECTROLYTIC 50V 0.22		
C2022		ECEA1HS010	ELECTROLYTIC 50V 1	1	
		OR ECEA1HU010	ELECTROLYTIC 50V 1		
C2023		VCYSARC472NX	CERAMIC 16V 0.0047 +-30%	1	
C2024		ECQM1H102KV	POLYESTER 50V 0.001	1	
		OR ECQM1H102KZ	POLYESTER 50V 0.001		
C2025		ECQM1H562KV	POLYESTER 50V 0.0056	1	
		OR ECQM1H562KZ	POLYESTER 50V 0.0056		
C2026		ECEA1HS0R1	ELECTROLYTIC 50V 0.1	1	
		OR ECEA1HU0R1	ELECTROLYTIC 50V 0.1		
C2027		ECEA0JS470	ELECTROLYTIC 6.3V 47	1	
		OR ECEA0JU470	ELECTROLYTIC 6.3V 47		
C2028		ECQM1H562KV	POLYESTER 50V 0.0056	1	
		OR ECQM1H562KZ	POLYESTER 50V 0.0056		
C2029		ECEA1HS0R1	ELECTROLYTIC 50V 0.1	1	
		OR ECEA1HU0R1	ELECTROLYTIC 50V 0.1		
C2030		ECQM1H562KV	POLYESTER 50V 0.0056	1	
		OR ECQM1H562KZ	POLYESTER 50V 0.0056		
C2031		ECEA0JS101	ELECTROLYTIC 6.3V 100	1	
		OR ECEA0JU101	ELECTROLYTIC 6.3V 100		
C2032		VCYSARC103NX	CERAMIC 16V 0.01	1	
			+-30%		
C2033,2034		ECEA0JS470	ELECTROLYTIC 6.3V 47	2	
		OR ECEA0JU470	ELECTROLYTIC 6.3V 47		
C2035		ECQV05104JZ	POLYESTER 50V 0.1 +-5%	1	
		OR ECQV1H104JZ	POLYESTER 50V 0.1 +-5%		
C2036		ECQM1H472JV	POLYESTER 50V 0.0047 +-5%	1	
		OR ECQM1H472JZ	POLYESTER 50V 0.0047 +-5%		
C2037		ECQV05563JZ	POLYESTER 50V 0.056 +-5%	1	
		OR ECQV1H563JZ	POLYESTER 50V 0.056 +-5%		
C2038		ECQV05124JZ	POLYESTER 50V 0.12 +-5%	1	
		OR ECQV1H124JZ	POLYESTER 50V 0.12 +-5%		
C2039		ECEA0JS221	ELECTROLYTIC 6.3V 220	1	
		OR ECEA0JU221	ELECTROLYTIC 6.3V 220		
C2040		ECEA0JS470	ELECTROLYTIC 6.3V 47	1	
		OR ECEA0JU470	ELECTROLYTIC 6.3V 47		
C2041		VCYSARC472NX	CERAMIC 16V 0.0047 +-30%	1	
C2042		ECQM1H333KV	POLYESTER 50V 0.033	1	
		OR ECQM1H333KZ	POLYESTER 50V 0.033		
C2043		ECQV05274JZ	POLYESTER 50V 0.27 +-5%	1	
		OR ECQV1H274JZ	POLYESTER 50V 0.27 +-5%		
C2044		ECQM1H272KV	POLYESTER 50V 0.0027	1	
		OR ECQM1H272KZ	POLYESTER 50V 0.0027		
C2045,2046		ECEA1CS100	ELECTROLYTIC 16V 10	2	
		OR ECEA1CU100	ELECTROLYTIC 16V 10		
C2047		ECEA0JS470	ELECTROLYTIC 6.3V 47	1	
		OR ECEA0JU470	ELECTROLYTIC 6.3V 47		
C2048		VCYW1E393KX	CERAMIC 25V 0.039	1	
C2049		ECEA0JS470	ELECTROLYTIC 6.3V 47	1	
		OR ECEA0JU470	ELECTROLYTIC 6.3V 47		
C2050		ECQM1H333KV	POLYESTER 50V 0.033	1	
		OR ECQM1H333KZ	POLYESTER 50V 0.033		
C2051		VCYSARC332NX	CERAMIC 16V 0.0033	1	
			+-30%		
C2052		VCYSARC103NX	CERAMIC 16V 0.01	1	
			+-30%		
C2053		ECQV05334JZ	POLYESTER 50V 0.33 +-5%	1	
		OR ECQV1H334JZ	POLYESTER 50V 0.33 +-5%		
C2054		ECQM1H682KV	POLYESTER 50V 0.0068	1	
		OR ECQM1H682KZ	POLYESTER 50V 0.0068		
C2055		ECQM1H332KV	POLYESTER 50V 0.0033	1	
		OR ECQM1H332KZ	POLYESTER 50V 0.0033		
C2056		ECQV05334JZ	POLYESTER 50V 0.33 +-5%	1	
		OR ECQV1H334JZ	POLYESTER 50V 0.33 +-5%		
C2057		ECQM1H332KV	POLYESTER 50V 0.0033	1	
		OR ECQM1H332KZ	POLYESTER 50V 0.0033		
C2058		VCYSARC332NX	CERAMIC 16V 0.0033	1	
			+-30%		
C2059		VCYSARH102KB	CERAMIC 50V 0.001	1	

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
C2060		ECKW1H102ZF5	CERAMIC 50V 0.001	1	
			+80%-20%		
C2061		ECQV05334JZ	POLYESTER 50V 0.33 +-5%	1	
		OR ECQV1H334JZ	POLYESTER 50V 0.33 +-5%		
C3206		ECKW1H103ZF5	CERAMIC 50V 0.01	1	
			+80%-20%		
C4001		ECKW1H102KB5	CERAMIC 50V 0.001	1	
C4002		ECEA50M1R	ELECTROLYTIC 50V 1	1	
C4003		ECEA1AS330	ELECTROLYTIC 10V 33	1	
		OR ECEA1AU330	ELECTROLYTIC 10V 33		
C4004		ECQM1H333KV	POLYESTER 50V 0.033	1	
		OR ECQM1H333KZ	POLYESTER 50V 0.033		
C4005		ECEA50ZR33	ELECTROLYTIC 50V 0.33	1	
C4006		VCYW1E103KX	CERAMIC 25V 0.01	1	
C4007		ECEA1AS330	ELECTROLYTIC 10V 33	1	
		OR ECEA1AU330	ELECTROLYTIC 10V 33		
C4008		ECEA1HS010	ELECTROLYTIC 50V 1	1	
		OR ECEA1HU010	ELECTROLYTIC 50V 1		
C4009		ECKW1H102KB5	CERAMIC 50V 0.001	1	
C4010		ECEA1CS100	ELECTROLYTIC 16V 10	1	
		OR ECEA1CU100	ELECTROLYTIC 16V 10		
C4011		ECEA1HS010	ELECTROLYTIC 50V 1	1	
		OR ECEA1HU010	ELECTROLYTIC 50V 1		
C4012		ECEA1CS100	ELECTROLYTIC 16V 10	1	
		OR ECEA1CU100	ELECTROLYTIC 16V 10		
C4013		ECEA1CS220	ELECTROLYTIC 16V 22	1	
		OR ECEA1CU220	ELECTROLYTIC 16V 22		
C4014		ECEA1HS0R1	ELECTROLYTIC 50V 0.1	1	
		OR ECEA1HU0R1	ELECTROLYTIC 50V 0.1		
C4015		ECEA1CS100	ELECTROLYTIC 16V 10	1	
		OR ECEA1CU100	ELECTROLYTIC 16V 10		
C4016		ECEA1AS330	ELECTROLYTIC 10V 33	1	
		OR ECEA1AU330	ELECTROLYTIC 10V 33		
C4018,4019		ECEA50Z0R1	ELECTROLYTIC 50V 0.1	2	
C4020		VCYW1E563KX	CERAMIC 25V 0.056	1	
C4021		ECEA50ZR22	ELECTROLYTIC 50V 0.22	1	
C4022		ECEA50ZR47	ELECTROLYTIC 50V 0.47	1	
C4023		ECEA1CS220	ELECTROLYTIC 16V 22	1	
		OR ECEA1CU220	ELECTROLYTIC 16V 22		
C4024		ECCW2H221K2	CERAMIC 500V 220P	1	
C4025		ECQM2682KZ	POLYESTER 200V 0.0068	1	
C4026,4027		ECKW1H103ZF5	CERAMIC 50V 0.01	2	
			+80%-20%		
C4028		ECEA1CS220	ELECTROLYTIC 16V 22	1	
		OR ECEA1CU220	ELECTROLYTIC 16V 22		
C4029		ECEA1HS010	ELECTROLYTIC 50V 1	1	
		OR ECEA1HU010	ELECTROLYTIC 50V 1		
C4030		ECEA1CS220	ELECTROLYTIC 16V 22	1	
		OR ECEA1CU220	ELECTROLYTIC 16V 22		
C4031		ECEA1ES4R7	ELECTROLYTIC 25V 4.7	1	
		OR ECEA1EU4R7	ELECTROLYTIC 25V 4.7		
C4032		ECEA1CS330	ELECTROLYTIC 16V 33	1	
		OR ECEA1CU330	ELECTROLYTIC 16V 33		
C4045		ECKW1H471KB5	CERAMIC 50V 470P	1	
C4046		VCYS0001	MULTI FUNCTION 0.01	1	
C4701,4702		ECEA1CS330	ELECTROLYTIC 16V 33	2	
		OR ECEA1CU330	ELECTROLYTIC 16V 33		
C4703		ECEA1AK330	ELECTROLYTIC 10V 33	1	
C4704		ECEA1EK3R3	ELECTROLYTIC 25V 3.3	1	
C4705		ECEA1HK0R1	ELECTROLYTIC 50V 0.1	1	
C4706		ECEA1EK3R3	ELECTROLYTIC 25V 3.3	1	
C4707		ECCW1H151J5	CERAMIC 50V 150P +-5%	1	
		OR ECCW1H151K5	CERAMIC 50V 150P		
C4708		ECKW1H102KB5	CERAMIC 50V 0.001	1	
C4709		ECEA1EK3R3	ELECTROLYTIC 25V 3.3	1	
C4710		ECEA1CK100	ELECTROLYTIC 16V 10	1	
C4711,4712		ECEA1EK3R3	ELECTROLYTIC 25V 3.3	2	
C4713,4714		ECCW1H151J5	CERAMIC 50V 150P +-5%	2	
		OR ECCW1H151K5	CERAMIC 50V 150P		
C4715		ECEA1CK100	ELECTROLYTIC 16V 10	1	

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
C6002		ECEA1CS100	ELECTROLYTIC 16V 10	1	
C6003		ECKW1H103ZF5	CERAMIC 50V 0.01	1	
			+80%-20%		
C6004		ECEA0JS221	ELECTROLYTIC 6.3V 220	1	
C6005		ECKW1H103ZF5	CERAMIC 50V 0.01	1	
			+80%-20%		
C6006		ECCW1H080CC	CERAMIC 50V 8P	1	
			+-0.25PF		
C6007		ECRHA020D11	TRIMMER 20P	1	
		OR MCV03R200ER	TRIMMER 20P		
C6009,6010		ECKW1H472ZF5	CERAMIC 50V 0.0047	2	
			+80%-20%		
C6011		ECKW1H103ZF5	CERAMIC 50V 0.01	1	
			+80%-20%		
C6012		VCYW1C104MX	CERAMIC 16V 0.1	1	
			+-20%		
C6013		ECKW1H222ZF5	CERAMIC 50V 0.0022	1	
			+80%-20%		
C6014		ECKW1H103ZF5	CERAMIC 50V 0.01	1	
			+80%-20%		
C6017		ECKW1H103ZF5	CERAMIC 50V 0.01	1	
			+80%-20%		
C6019		ECEA1CS221	ELECTROLYTIC 16V 220	1	
C6021,6022		VCYW1C104MX	CERAMIC 16V 0.1	2	
			+-20%		
C6024		VCYSARC103NY	CERAMIC 16V 0.01 +-30%	1	
C6025		ECKW1H102ZF5	CERAMIC 50V 0.001	1	
			+80%-20%		
C6026		ECEA0JK101	ELECTROLYTIC 6.3V 100	1	
C6031		ECCF1H470JC	CERAMIC 50V 47P +-5%	1	
		ECCW1H470JC5	CERAMIC 50V 47P +-5%		
C6201-6203		ECKW1H103ZF5	CERAMIC 50V 0.01	3	
			+80%-20%		
			COILS		
L4001		VLQS68F222K	2.2M	1	
L4002		VLQS67F222K	2.2M	1	
L4003		VLQS66F471K	470	1	
L6001		VLQS66R101K	100	1	
			CRYSTALS OSCILLATOR		
X6001		VSXS0002		1	
			PIN HEADER		
P2001		VJPS0016	12P	1	
P2002		VJPS0100	4P	1	
P2003		VJPS0098	2P	1	
P2004		VJPS0041	10P	1	
P2005		VJPS0098	2P	1	
P2006		VJPS0104	8P	1	
P3201		VJPS0104	8P	1	
P4001		VJPS0100	4P	1	
P6001		VJPS0107	11P	1	
P6002		VJPS0106	2P	1	
P6003		VJPS0101	5P	1	
P6005		VJPS0098	2P	1	
P6008		VJPS0105	9P	1	
P6009		VJPS0022	7P	1	
			SWITCH		
SW2001		VSSS0033	SELECT	1	

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
			TRANSFORMER		
T4001		EIQ7QG002B		1	
			MISCELLANEOUS		
		TMM7443	CLAMPER	3	
		VEKS1890	LUG ASS'Y	2	
		VMTS0035	CUSHION	3	
		VMXS0573	SPACER	4	
		VSCS0495	SHIELD CASE	1	
		VSCS0496	SHIELD CASE	1	
		VZFS0006	CLAMPER	2	
		VEKS1947	LUG ASS'Y	1	
			SERVO/SUB AUDIO/SYSTEM CONTROL		(B)
			C.B.A		
			INTEGRATED CIRCUITS		
IC2001		AN6359		1	
		OR AN6359N			
IC2002		MN6168VIB		1	
IC2003		AN6356N		1	
IC2004		AN6387		1	
IC2005		UPD6110CA		1	
IC2006,2007		AN1358		2	
		OR AN6562			
		OR HA17358			
		OR UPC1358C			
IC3201		TA7348P		1	
IC4701,4702		AN6558		2	
		OR BA4558			
IC4703,4704		TA7347P		2	
IC4705		BA715		1	
		OR TA75557S			
IC6001		MN15846VRC		1	
IC6003		MB88201-128L		1	
IC6004,6005		BA6209U1		2	
			TRANSISTORS		
Q2001,2002		2SA937M(R)		2	
		OR			
		2SB641(Q,R,S)			
Q2003,2004		2SC2021M(R)		2	
		OR			
		2SD636(Q,R,S)			
Q2005,2006		2SA937M(R)		2	
		OR			
		2SB641(Q,R,S)			
Q2007-2011		2SC2021M(R)		5	
		OR			
		2SD636(Q,R,S)			
Q2012		2SA937M(R)		1	
		OR			
		2SB641(Q,R,S)			
Q2013		2SD1266		1	
		OR 2SD856			
Q2014		2SA937M(R)		1	
		OR			
		2SB641(Q,R,S)			
Q2015		2SC2021M(R)		1	
		OR			
		2SD636(Q,R,S)			
Q3201		2SC2021M(R)		1	
		OR			

Ref. No.	Part No.	Part Name & Description	Pcs / Set	Remarks
	2SD636(Q,R,S)			
Q4701	2SD636(Q,R,S)		1	
Q4702	2SB641(Q,R)		1	
Q4703	2SD655(E,F)		1	
	OR 2SD661(S,T)			
Q4704	2SB641(Q,R)		1	
Q4705	2SD655(E,F)		1	
	OR 2SD661(S,T)			
Q4706,4707	2SD636(Q,R,S)		2	
Q6001	2SA937M(R)		1	
	OR			
	2SB641(Q,R,S)			
Q6002-6005	2SC2021M(R)		4	
	OR			
	2SD636(Q,R,S)			
Q6006	2SD638(Q,R,S)		1	
Q6007-6009	2SC2021M(R)		3	
	OR			
	2SD636(Q,R,S)			
Q6010-6012	2SA937M(R)		3	
	OR			
	2SB641(Q,R,S)			
Q6014	2SC2021M(R)		1	
	OR			
	2SD636(Q,R,S)			
Q6016	2SC2021M(R)		1	
	OR			
	2SD636(Q,R,S)			
Q6019	2SC2021M(R)		1	
	OR			
	2SD636(Q,R,S)			
Q6021	2SA937M(R)		1	
	OR			
	2SB641(Q,R,S)			
		DIODES		
D2001-2007	MA165		7	
	OR 1SS119			
D2009-2019	MA165		11	
	OR 1SS119			
D3201-3205	EQA02-13	ZENER	5	
	OR MA4130	ZENER		
	OR RD13EB	ZENER		
D4701	MA165		1	
D4702	MA4130	ZENER	1	
D4703	MA165		1	
D4704-4709	MA4130	ZENER	6	
D4710,4711	MA165		2	
D6001-6004	MA165		4	
D6005	EQA02-06-A	ZENER	1	
	OR EQA02-06-B	ZENER		
	OR MA1056	ZENER		
	OR RD5.6EB2	ZENER		
D6006,6007	MA165		2	
D6009-6015	MA165		7	
D6017,6018	MA165		2	
D6022,6023	MA165		2	
D6027	MA165		1	
D6030-6041	MA165		12	
D6199	MA165		1	
D6201	EQA02-20	ZENER	1	
	OR RD20EB	ZENER		
		RESISTORS		
RX6001	EXBP84223K	1/8W 22K +-10%	1	
R2001	ERDS2TJ223	22K	1	
R2002	ERDS2TJ334	330K	1	
R2003	ERDS2TJ272	2.7K	1	

Ref. No.	Part No.	Part Name & Description	Pcs / Set	Remarks
R2004	ERDS2TJ473	47K	1	
R2006	ERDS2TJ153	15K	1	
R2007	ERDS2TJ472	4.7K	1	
R2008	ERDS2TJ153	15K	1	
R2009-2011	ERDS2TJ103	10K	3	
R2012	ERDS2TJ153	15K	1	
R2013	ERDS2TJ105	1M	1	
R2014	ERDS2TJ333	33K	1	
R2015	ERDS2TJ102	1K	1	
R2016	ERDS2TJ472	4.7K	1	
R2017	ERDS2TJ103	10K	1	
R2018,2019	ERDS2TJ332	3.3K	2	
R2020-2022	ERDS2TJ470	47	3	
R2023	ERQS2TKG1801	PRECISION METAL FILM 1.8K +-2%	1	
R2024	ERQS2TKG6801	PRECISION METAL FILM 6.8K +-2%	1	
R2025	⚠ ERX12ANJR56	METAL OXIDE 1/2W 0.56	1	
	⚠ OR ERX12SJR56	METAL OXIDE 1/2W 0.56		
R2026	ERDS2TJ104	100K	1	
R2027	ERDS2TJ124	120K	1	
R2028	ERDS2TJ104	100K	1	
R2029	ERDS2TJ333	33K	1	
R2030	ERDS2TJ124	120K	1	
R2031	ERDS2TJ272	2.7K	1	
R2032,2033	ERDS2TJ154	150K	2	
R2034	ERDS2TJ274	270K	1	
R2035	ERDS2TJ473	47K	1	
R2036	ERDS2TJ822	8.2K	1	
R2037	ERQS2TKG6801	PRECISION METAL FILM 6.8K +-2%	1	
R2038,2039	ERQS2TKG1002	PRECISION METAL FILM 10K +-2%	2	
R2040	ERQS2TKG1202	PRECISION METAL FILM 12K +-2%	1	
R2041	ERDS2TJ154	150K	1	
R2042	ERDS2TJ104	100K	1	
R2043	ERDS2TJ682	6.8K	1	
R2044,2045	ERDS2TJ104	100K	2	
R2046	ERDS2TJ563	56K	1	
R2047	ERDS2TJ104	100K	1	
R2048	ERDS2TJ393	39K	1	
R2049,2050	ERDS2TJ104	100K	2	
R2051	ERDS2TJ563	56K	1	
R2052-2054	ERDS2TJ393	39K	3	
R2055	ERQS2TKG1003	PRECISION METAL FILM 100K +-2%	1	
R2056	ERDS2TJ103	10K	1	
R2057	ERQS2TKG1202	PRECISION METAL FILM 12K +-2%	1	
R2058	ERQS2TKG1602	PRECISION METAL FILM 16K +-2%	1	
R2059	ERDS2TJ224	220K	1	
R2060	ERDS2TJ103	10K	1	
R2061	EVJFFAF15B15	VARIABLE TRACKING 100K	1	
R2064	ERDS2TJ562	5.6K	1	
R2065	ERDS2TJ104	100K	1	
R2066	EVNE4AA00B54	VARIABLE 50K	1	
R2067,2068	ERDS2TJ102	1K	2	
R2069	EVN38CA00B15	VARIABLE 100K	1	
R2070,2071	ERDS2TJ104	100K	2	
R2072	EVJFPAF15B15	VARIABLE SLOW TRACKING 100K	1	
R2073	ERDS2TJ222	2.2K	1	
R2074	ERDS2TJ181	180	1	
R2075	ERDS2TJ223	22K	1	
R2076	ERDS2TJ474	470K	1	
R2077	ERDS2TJ563	56K	1	
R2078,2079	ERDS2TJ104	100K	2	
R2080	ERDS2TJ333	33K	1	
R2081	ERDS2TJ103	10K	1	
R2082	ERDS2TJ223	22K	1	
R2083,2084	ERDS2TJ823	82K	2	
R2085	ERDS2TJ332	3.3K	1	
R2086	ERDS2TJ103	10K	1	
R2087	ERDS2TJ333	33K	1	
R2088,2089	ERDS2TJ104	100K	2	
R2090	ERDS2TJ184	180K	1	
R2091	ERDS2TJ104	100K	1	

Ref. No.	Part No.	Part Name & Description	Pcs / Set	Remarks
R2092	ERDS2TJ684	680K	1	
R2093	ERDS2TJ224	220K	1	
R2094	ERDS2TJ223	22K	1	
R2096	ERDS2TJ103	10K	1	
R2097	EVN38CA00B54	VARIABLE 50K	1	
R2098	EVN38CA00B15	VARIABLE 100K	1	
R2099,2100	EVLS3MA00B15	VARIABLE 100K	2	
R2101	ERDS2TJ223	22K	1	
R2102	ERDS2TJ273	27K	1	
R2103	ERDS2TJ154	150K	1	
R2104	ERDS2TJ472	4.7K	1	
R2105,2106	ERDS2TJ103	10K	2	
R2107	ERDS2TJ473	47K	1	
R2109	ERDS2TJ822	8.2K	1	
R2114	ERDS2TJ103	10K	1	
R2121	ERDS2TJ473	47K	1	
R2122	ERDS2TJ103	10K	1	
R2124	ERDS2TJ103	10K	1	
R2125	ERDS2TJ222	2.2K	1	
R3201	ERDS2TJ101	100	1	
R3202	ERDS2TJ103	10K	1	
R3203	ERDS2TJ562	5.6K	1	
R3205	ERDS2TJ272	2.7K	1	
R3206	ERDS2TJ103	10K	1	
R3207	ERDS2TJ563	56K	1	
R3208	ERDS2TJ473	47K	1	
R3209	EVJFFAF15B24	VARIABLE 20K	1	
R3210	ERDS2TJ123	12K	1	
R3211	ERDS2TJ472	4.7K	1	
R3212	ERDS2TJ102	1K	1	
R4701	ERDS2TJ182	1.8K	1	
R4702,4703	ERDS2TJ103	10K	2	
R4704	ERDS2TJ105	1M	1	
R4705	ERDS2TJ101	100	1	
R4706	ERDS2TJ104	100K	1	
R4707	ERDS2TJ183	18K	1	
R4708	ERDS2TJ103	10K	1	
R4709	ERDS2TJ473	47K	1	
R4710	ERDS2TJ563	56K	1	
R4711	ERDS2TJ562	5.6K	1	
R4712	ERDS2TJ473	47K	1	
R4713	ERDS2TJ563	56K	1	
R4714	ERDS2TJ182	1.8K	1	
R4715	ERDS2TJ473	47K	1	
R4716	ERDS2TJ105	1M	1	
R4717	ERDS2TJ101	100	1	
R4718	ERDS2TJ104	100K	1	
R4719	ERDS2TJ183	18K	1	
R4720	ERDS2TJ103	10K	1	
R4721	ERDS2TJ563	56K	1	
R4722	ERDS2TJ562	5.6K	1	
R4723,4724	ERDS2TJ473	47K	2	
R4725	ERDS2TJ563	56K	1	
R4726	ERDS2TJ182	1.8K	1	
R4727	ERDS2TJ473	47K	1	
R4728,4729	ERDS2TJ151	150	2	
R4730	ERDS2TJ473	47K	1	
R4731	ERDS2TJ472	4.7K	1	
R4732	ERDS2TJ473	47K	1	
R4733	ERDS2TJ472	4.7K	1	
R4734,4735	ERDS2TJ223	22K	2	
R4736	ERDS2TJ182	1.8K	1	
R4737	ERDS2TJ472	4.7K	1	
R4738,4739	ERDS2TJ154	150K	2	
R4740,4741	ERDS2TJ104	100K	2	
R4742,4743	ERDS2TJ102	1K	2	
R4744	ERDS2TJ272	2.7K	1	
R4745	ERDS2TJ103	10K	1	
R4746,4747	ERDS2TJ392	3.9K	2	
R4748,4749	ERDS2TJ154	150K	2	

Ref. No.	Part No.	Part Name & Description	Pcs / Set	Remarks
R6001	⚠ ERG1AMJ181	METAL OXIDE 1W 180	1	
R6002,6003	ERDS2TJ333	33K	2	
R6004	ERDS2TJ472	4.7K	1	
R6005	ERDS2TJ153	15K	1	
R6006	ERDS2TJ332	3.3K	1	
R6007	ERDS2TJ152	1.5K	1	
R6008,6009	ERDS2TJ223	22K	2	
R6010	ERDS2TJ472	4.7K	1	
R6011	ERDS2TJ474	470K	1	
R6012	ERDS2TJ472	4.7K	1	
R6013,6014	ERDS2TJ104	100K	2	
R6015	ERDS2TJ472	4.7K	1	
R6021	ERDS2TJ824	820K	1	
R6022	ERDS2TJ102	1K	1	
R6023	ERDS2TJ273	27K	1	
R6024	ERDS2TJ123	12K	1	
R6025	ERDS2TJ102	1K	1	
R6026	ERDS2TJ223	22K	1	
R6027	ERDS2TJ563	56K	1	
R6028	ERDS2TJ102	1K	1	
R6031	ERDS1TJ101	1/2W 100	1	
R6032-6034	ERDS2TJ222	2.2K	3	
K6035	ERDS2TJ333	33K	1	
R6036	ERDS2TJ224	220K	1	
R6037	ERDS2TJ822	8.2K	1	
R6038	ERDS2TJ223	22K	1	
R6039-6041	ERDS2TJ822	8.2K	3	
R6042-6044	ERDS2TJ223	22K	3	
R6045	ERDS2TJ332	3.3K	1	
R6046	ERDS2TJ154	150K	1	
R6047	ERDS2TJ224	220K	1	
R6048,6049	ERDS2TJ223	22K	2	
R6053	ERDS2TJ222	2.2K	1	
R6054	ERDS2TJ392	3.9K	1	
R6055	ERDS2TJ683	68K	1	
R6056,6057	ERDS2TJ822	8.2K	2	
R6058-6061	ERDS2TJ682	6.8K	4	
R6062	ERDS2TJ822	8.2K	1	
R6063	ERDS2TJ223	22K	1	
R6064	ERDS2TJ471	470	1	
R6068,6069	ERDS2TJ392	3.9K	2	
R6070	ERDS2TJ103	10K	1	
R6071	ERDS2TJ682	6.8K	1	
R6072,6073	ERDS2TJ103	10K	2	
R6075	ERDS2TJ103	10K	1	
R6077,6078	ERDS2TJ102	1K	2	
R6079	ERDS2TJ103	10K	1	
R6080,6081	ERDS2TJ472	4.7K	2	
R6082,6083	ERDS2TJ103	10K	2	
R6084,6085	ERDS2TJ472	4.7K	2	
R6086	ERDS2TJ563	56K	1	
R6087	ERDS2TJ104	100K	1	
R6088	ERDS2TJ472	4.7K	1	
R6089	ERDS2TJ102	1K	1	
R6091	ERDS2TJ102	1K	1	
R6092	ERDS2TJ103	10K	1	
R6093,6094	ERDS2TJ102	1K	2	
R6095	ERDS2TJ472	4.7K	1	
R6096	⚠ ERDS1FJ2R7	1/2W 2.7	1	
R6097	ERDS2TJ102	1K	1	
R6098	ERDS2TJ104	100K	1	
R6099	ERDS2TJ333	33K	1	
R6100	ERDS2TJ103	10K	1	
R6103,6104	ERDS2TJ472	4.7K	2	
R6108	ERDS2TJ274	270K	1	
R6109	ERDS2TJ333	33K	1	
R6111	ERDS2TJ102	1K	1	
R6112,6113	ERDS2TJ472	4.7K	2	
R6114,6115	ERDS2TJ102	1K	2	
R6117	ERDS2TJ102	1K	1	

Ref. No.	Part No.	Part Name & Description	Pcs / Set	Remarks
R6120	ERDS2TJ333	33K	1	
R6123,6124	ERDS2TJ223	22K	2	
R6128	ERDS2TJ332	3.3K	1	
R6133	ERDS2TJ103	10K	1	
R6197	ERDS2TJ562	5.6K	1	
R6198,6199	ERDS2TJ104	100K	2	
R6201	ERDS2TJ102	1K	1	
		CAPACITORS		
C2001	ECEA1HS010	ELECTROLYTIC 50V 1	1	
	OR ECEA1HU010	ELECTROLYTIC 50V 1		
C2002	VCYSARC103NY	CERAMIC 16V 0.01 +-30%	1	
C2003	ECEA1EN3R3S	ELECTROLYTIC 25V 3.3	1	
C2004	ECQM1H103KV	POLYESTER 50V 0.01	1	
	OR ECQM1H103KZ	POLYESTER 50V 0.01		
C2005	ECEA1CS100	ELECTROLYTIC 16V 10	1	
	OR ECEA1CU100	ELECTROLYTIC 16V 10		
C2006	ECEA1HS010	ELECTROLYTIC 50V 1	1	
	OR ECEA1HU010	ELECTROLYTIC 50V 1		
C2007	ECEA1HN010S	ELECTROLYTIC 50V 1	1	
C2008	ECEA1HS0R1	ELECTROLYTIC 50V 0.1	1	
	OR ECEA1HU0R1	ELECTROLYTIC 50V 0.1		
C2009	VCYSARH222NX	CERAMIC 16V 0.0022 +-30%	1	
C2010	VCYW1E152KX	CERAMIC 25V 0.0015	1	
C2011	ECEA1HS2R2	ELECTROLYTIC 50V 2.2	1	
	OR ECEA1HU2R2	ELECTROLYTIC 50V 2.2		
C2012	ECEA1HN2R2S	ELECTROLYTIC 50V 2.2	1	
C2013	ECEA1CS101	ELECTROLYTIC 16V 100	1	
	OR ECEA1CU101	ELECTROLYTIC 16V 100		
C2014	VCYSARC682NX	CERAMIC 16V 0.0068	1	
		+-30%		
C2015	ECEA1CS221	ELECTROLYTIC 16V 220	1	
	OR ECEA1CU221	ELECTROLYTIC 16V 220		
C2016,2017	ECEA1HN2R2S	ELECTROLYTIC 50V 2.2	2	
C2018	VCYSARH102KB	CERAMIC 50V 0.001	1	
C2019	ECEA1ES3R3	ELECTROLYTIC 25V 3.3	1	
	OR ECEA1EU3R3	ELECTROLYTIC 25V 3.3		
C2020	ECQM1H123KV	POLYESTER 50V 0.012	1	
	OR ECQM1H123KZ	POLYESTER 50V 0.012		
C2021	ECEA1HSR22	ELECTROLYTIC 50V 0.22	1	
	OR ECEA1HUR22	ELECTROLYTIC 50V 0.22		
C2022	ECEA1HS010	ELECTROLYTIC 50V 1	1	
	OR ECEA1HU010	ELECTROLYTIC 50V 1		
C2023	VCYSARC472NX	CERAMIC 16V 0.0047 +-30%	1	
C2024	ECQM1H102KV	POLYESTER 50V 0.001	1	
	OR ECQM1H102KZ	POLYESTER 50V 0.001		
C2025	ECQM1H562KV	POLYESTER 50V 0.0056	1	
	OR ECQM1H562KZ	POLYESTER 50V 0.0056		
C2026	ECEA1HS0R1	ELECTROLYTIC 50V 0.1	1	
	OR ECEA1HU0R1	ELECTROLYTIC 50V 0.1		
C2027	ECEA0JS470	ELECTROLYTIC 6.3V 47	1	
	OR ECEA0JU470	ELECTROLYTIC 6.3V 47		
C2028	ECQM1H562KV	POLYESTER 50V 0.0056	1	
	OR ECQM1H562KZ	POLYESTER 50V 0.0056		
C2029	ECEA1HS0R1	ELECTROLYTIC 50V 0.1	1	
	OR ECEA1HU0R1	ELECTROLYTIC 50V 0.1		
C2030	ECQM1H562KV	POLYESTER 50V 0.0056	1	
	OR ECQM1H562KZ	POLYESTER 50V 0.0056		
C2031	ECEA0JS101	ELECTROLYTIC 6.3V 100	1	
	OR ECEA0JU101	ELECTROLYTIC 6.3V 100		
C2032	VCYSARC103NY	CERAMIC 16V 0.01 +-30%	1	
C2033,2034	ECEA0JS470	ELECTROLYTIC 6.3V 47	2	
	OR ECEA0JU470	ELECTROLYTIC 6.3V 47		
C2035	ECQV05104JZ	POLYESTER 50V 0.1 +-5%	1	
	OR ECQV1H104JZ	POLYESTER 50V 0.1 +-5%		
C2036	ECQM1H472JV	POLYESTER 50V 0.0047 +-5%	1	
	OR ECQM1H472JZ	POLYESTER 50V 0.0047 +-5%		
C2037	ECQV05563JZ	POLYESTER 50V 0.056 +-5%	1	

Ref. No.	Part No.	Part Name & Description	Pcs / Set	Remarks
	OR ECQV1H563JZ	POLYESTER 50V 0.056 +-5%		
C2038	ECQV05124JZ	POLYESTER 50V 0.12 +-5%	1	
	OR ECQV1H124JZ	POLYESTER 50V 0.12 +-5%		
C2039	ECEA0JS221	ELECTROLYTIC 6.3V 220	1	
	OR ECEA0JU221	ELECTROLYTIC 6.3V 220		
C2040	ECEA0JS470	ELECTROLYTIC 6.3V 47	1	
	OR ECEA0JU470	ELECTROLYTIC 6.3V 47		
C2041	VCYSARC472NX	CERAMIC 16V 0.0047 +-30%	1	
C2042	ECQM1H333KV	POLYESTER 50V 0.033	1	
	OR ECQM1H333KZ	POLYESTER 50V 0.033		
C2043	ECQV05274JZ	POLYESTER 50V 0.27 +-5%	1	
	OR ECQV1H274JZ	POLYESTER 50V 0.27 +-5%		
C2044	ECQM1H272KV	POLYESTER 50V 0.0027	1	
	OR ECQM1H272KZ	POLYESTER 50V 0.0027		
C2045,2046	ECEA1CS100	ELECTROLYTIC 16V 10	2	
	OR ECEA1CU100	ELECTROLYTIC 16V 10		
C2047	ECEA0JS470	ELECTROLYTIC 6.3V 47	1	
	OR ECEA0JU470	ELECTROLYTIC 6.3V 47		
C2048	VCYW1E223KX	CERAMIC 25V 0.022	1	
C2049	ECEA0JS470	ELECTROLYTIC 6.3V 47	1	
	OR ECEA0JU470	ELECTROLYTIC 6.3V 47		
C2050	ECQM1H333KV	POLYESTER 50V 0.033	1	
	OR ECQM1H333KZ	POLYESTER 50V 0.033		
C2051	VCYSARC332NX	CERAMIC 16V 0.0033	1	
		+-30%		
C2052	VCYSARC103NY	CERAMIC 16V 0.01 +-30%	1	
C2053	ECQV05334JC	POLYESTER 50V 0.33 +-5%	1	
	OR ECQV05334JZ	POLYESTER 50V 0.33 +-5%		
	OR ECQV1H334JZ	POLYESTER 50V 0.33 +-5%		
C2054	ECQM1H682KV	POLYESTER 50V 0.0068	1	
	OR ECQM1H682KZ	POLYESTER 50V 0.0068		
C2055	ECQM1H332KV	POLYESTER 50V 0.0033	1	
	OR ECQM1H332KZ	POLYESTER 50V 0.0033		
C2056	ECQV05334JC	POLYESTER 50V 0.33 +-5%	1	
	OR ECQV05334JZ	POLYESTER 50V 0.33 +-5%		
	OR ECQV1H334JZ	POLYESTER 50V 0.33 +-5%		
C2057	ECQM1H332KV	POLYESTER 50V 0.0033	1	
	OR ECQM1H332KZ	POLYESTER 50V 0.0033		
C2058	VCYSARC332NX	CERAMIC 16V 0.0033	1	
		+-30%		
C2059	VCYSARH102KB	CERAMIC 50V 0.001	1	
C2060	ECKW1H102ZF5	CERAMIC 50V 0.001	1	
		+80%-20%		
C2061	ECQV05334JC	POLYESTER 50V 0.33 +-5%	1	
	OR ECQV05334JZ	POLYESTER 50V 0.33 +-5%		
C3201	ECEA1HS3R3	ELECTROLYTIC 50V 3.3	1	
	OR ECEA1HU3R3	ELECTROLYTIC 50V 3.3		
C3202	ECEA1ES100	ELECTROLYTIC 25V 10	1	
C3203,3204	ECEA1HS2R2	ELECTROLYTIC 50V 2.2	2	
C3205	ECEA1CS470	ELECTROLYTIC 16V 47	1	
C3206	ECKW1H103ZF5	CERAMIC 50V 0.01	1	
		+80%-20%		
C4701,4702	ECEA1CK330	ELECTROLYTIC 16V 33	2	
C4703	ECEA1AK330	ELECTROLYTIC 10V 33	1	
C4704	ECEA1EK3R3	ELECTROLYTIC 25V 3.3	1	
C4705	ECEA1HK0R1	ELECTROLYTIC 50V 0.1	1	
C4706	ECEA1EK3R3	ELECTROLYTIC 25V 3.3	1	
C4707	ECCW1H151K5	CERAMIC 50V 150P	1	
C4708	ECKW1H102KB5	CERAMIC 50V 0.001	1	
C4709	ECEA1EK3R3	ELECTROLYTIC 25V 3.3	1	
C4710	ECEA1CK100	ELECTROLYTIC 16V 10	1	
C4711,4712	ECEA1EK3R3	ELECTROLYTIC 25V 3.3	2	
C4713,4714	ECCW1H151K5	CERAMIC 50V 150P	2	
C4715	ECEA1CK100	ELECTROLYTIC 16V 10	1	
C4716	ECEA1EK3R3	ELECTROLYTIC 25V 3.3	1	
C4717	ECEA1HK0R1	ELECTROLYTIC 50V 0.1	1	
C4718	ECEA1EK3R3	ELECTROLYTIC 25V 3.3	1	
C4719	ECCW1H151K5	CERAMIC 50V 150P	1	
C4720	ECKW1H102KB5	CERAMIC 50V 0.001	1	
C4721	ECEA1EK3R3	ELECTROLYTIC 25V 3.3	1	

Ref. No.	Part No.	Part Name & Description	Pcs / Set	Remarks
C4722	ECEA1CK100	ELECTROLYTIC 16V 10	1	
C4723,4724	ECEA1EK3R3	ELECTROLYTIC 25V 3.3	2	
C4725,4726	ECCW1H151K5	CERAMIC 50V 150P	2	
C4727	ECEA1CK100	ELECTROLYTIC 16V 10	1	
C4728,4729	VCYS0001	MULTI FUNCTION 0.01	2	
C4730	ECCW1H820J5	CERAMIC 50V 82P +-5%	1	
	OR ECCW1H820K5	CERAMIC 50V 82P		
C4731	ECEA1ES4R7	ELECTROLYTIC 25V 4.7	1	
C4732	ECKW1H103ZF5	CERAMIC 50V 0.01	1	
		+80%-20%		
C4733	ECEA1CS100	ELECTROLYTIC 16V 10	1	
C4735	ECCW1H820J5	50V 82P +-5%	1	
	OR ECCW1H820K5	CERAMIC 50V 82P		
C4736	ECEA1ES4R7	ELECTROLYTIC 25V 4.7	1	
C4737	ECKW1H103ZF5	CERAMIC 50V 0.01	1	
		+80%-20%		
C4738	ECEA1CS100	ELECTROLYTIC 16V 10	1	
C4740	ECEA1AS330	ELECTROLYTIC 10V 33	1	
C4741,4742	ECEA1CS330	ELECTROLYTIC 16V 33	2	
C4743	ECEA1CS100	ELECTROLYTIC 16V 10	1	
C4744	ECEA1ES3R3	ELECTROLYTIC 25V 3.3	1	
C4745	ECEA1EN4R7S	ELECTROLYTIC 25V 4.7	1	
C4746,4747	ECEA1ES3R3	ELECTROLYTIC 25V 3.3	2	
C4748	ECEA1EN4R7S	ELECTROLYTIC 25V 4.7	1	
C4749-4751	ECKW1H102KB5	CERAMIC 50V 0.001	3	
C6001	ECEA0JS221	ELECTROLYTIC 6.3V 220	1	
C6002	ECEA1CS100	ELECTROLYTIC 16V 10	1	
C6003	ECKW1H103ZF5	CERAMIC 50V 0.01	1	
		+80%-20%		
C6004	ECEA0JS221	ELECTROLYTIC 6.3V 220	1	
C6005	ECKW1H103ZF5	CERAMIC 50V 0.01	1	
		+80%-20%		
C6006	ECCW1H180CC	CERAMIC 50V 18P	1	
		+-0.25P		
C6007	ECRHA020D11	TRIMMER 20P	1	
	OR MCV03R200ER	TRIMMER 20P		
C6008	EECW5R5F473	GOLD 5.5V 0.047	1	
C6009,6010	ECKW1H472ZF5	CERAMIC 50V 0.0047	2	
		+80%-20%		
C6011	ECKW1H103ZF5	CERAMIC 50V 0.01	1	
		+80%-20%		
C6012	VCYW1C104MX	CERAMIC 16V 0.1	1	
		+-20%		
C6013	ECKW1H222ZF5	CERAMIC 50V 0.0022	1	
		+80%-20%		
C6015,6016	ECCW1H330JC5	CERAMIC 50V 33P	2	
	OR			
	ECCW1H330KC5	CERAMIC 50V 33P		
C6017	ECKW1H103ZF5	CERAMIC 50V 0.01	1	
		+80%-20%		
C6018	ECEA1CS470	ELECTROLYTIC 16V 47	1	
C6019	ECEA1CS221	ELECTROLYTIC 16V 220	1	
C6020	ECKW1H103ZF5	CERAMIC 50V 0.01	1	
		+80%-20%		
C6021,6022	VCYW1C104MX	CERAMIC 16V 0.1	2	
		+-20%		
C6023	ECEA0JS330	ELECTROLYTIC 6.3V 33	1	
C6024	VCYSARC103NY	CERAMIC 16V 0.01 +-30%	1	
C6025	ECKW1H102ZF5	CERAMIC 50V 0.001	1	
		+80%-20%		
C6026	ECEA0JK101	ELECTROLYTIC 6.3V 100	1	
C6201	ECKW1H103ZF5	CERAMIC 50V 0.01	1	
		+80%-20%		
		COILS		
L6001,6002	VLQS66R101K	100	2	

Ref. No.	Part No	Part Name & Description	Pcs / Set	Remarks
		CRYSTALS OSCILLATOR		
X6001	VSXS0009		1	
	OR VSXS0011			
		PIN HEADERS		
P2001	VJPS0016	12P	1	
P2002	VJPS0100	4P	1	
P2003	VJPS0098	2P	1	
P2004	VJPS0041	10P	1	
P2005	VJPS0098	2P	1	
P2006	VJPS0104	8P	1	
P3201	VJPS0104	8P	1	
P3202	VJPS0099	3P	1	
P4701	VJPS0104	8P	1	
P6001	VJPS0107	11P	1	
P6002	VJPS0108	12P	1	
P6003	VJPS0099	3P	1	
P6004	VJPS0099	3P	1	
P6005	VJPS0098	2P	1	
P6008	VJPS0105	9P	1	
P6010	VJPS0103	7P	1	
		SWITCHES		
SW2001	VSSS0033	SELECT	1	
SW4701	VSSS0033	SELECT	1	
		MISCELLANEOUS		
	TMM7443	CLAMPER	3	
	VEKS1890	LUG ASS'Y	1	
	VJJS0069	REAR JACK	1	
	VMX0573	SPACER	4	
	VSCS0497	SHIELD CASE	1	
	VSCS0498	SHIELD CASE	1	
	VZFS0006	CLAMPER	2	
		SIGNAL PROCESS C.B.A		(A)
		TRANSISTORS		
Q3001,3002	2SC2021M(Q,R,S)		2	
	OR			
	2SD636(Q,R,S)			
Q3006	2SA937M(Q,R,S)		1	
	OR			
	2SB641(Q,R,S)			
Q3007,3008	2SC2021M(Q,R,S)		2	
	OR			
	2SD636(Q,R,S)			
Q3010	2SA937M(Q,R,S)		1	
	OR			
	2SB641(Q,R,S)			
Q4551	2SC2021M(R,S)		1	
	OR			
	2SD636(Q,R,S)			
Q4552	2SA950Y		1	
	OR 2SB643(R,S)			
Q4553	2SD637(Q,R)		1	
Q7001,7002	2SD637(Q,R,S)		2	
Q7004,7005	2SD637(Q,R,S)		2	
Q7006	2SD636(Q,R,S)		1	

Ref. No.	Part No.	Part Name & Description	Pcs/Set	Remarks
		DIODES		
D3003	EQA02-09CD	ZENER	1	
	OR MA4091	ZENER		
	OR RD9.1EB2	ZENER		
	OR RD9.1EB3	ZENER		
D3004	MA165		1	
	OR 1SS119			
D3005	EQA02-11	ZENER	1	
	OR MA4110	ZENER		
	OR RD11EB	ZENER		
D3006	MA165		1	
	OR 1SS119			
D7001	MA165		1	
	OR 1SS119			
D7003	MA4100H	ZENER	1	
D7005	MA165		1	
	OR 1SS119			
D7006,7007	RD15EB	ZENER	2	
		RESISTORS		
R3001	EVNE4AA00B23	VARIABLE 2K	1	
R3002	ERDS2TJ821	820	1	
R3003	ERDS2TJ122	1.2K	1	
R3004	ERDS2TJ222	2.2K	1	
R3005	ERDS2TJ681	680	1	
R3006	ERDS2TJ820	82	1	
R3015	ERDS2TJ681	680	1	
R3016	EVNE4AA00B13	VARIABLE 1K	1	
R3017	ERDS2TJ561	560	1	
R3018	ERDS2TJ392	3.9K	1	
R3019	ERDS2TJ333	33K	1	
R3020	ERDS2TJ473	47K	1	
R3030,3031	ERDS2TJ103	10K	2	
R3034	ERDS2TJ471	470	1	
R3035	ERDS2TJ680	68	1	
R3036	ERDS2TJ102	1K	1	
R3037	ERDS2TJ561	560	1	
R3040	ERDS2TJ153	15K	1	
R3041	ERDS2TJ563	56K	1	
R3042	ERDS2TJ223	22K	1	
R3043-3045	ERDS2TJ473	47K	3	
R3046	ERDS2TJ333	33K	1	
R3048	ERDS2TJ682	6.8K	1	
R3049,3050	ERDS2TJ332	3.3K	2	
R3054	ERDS2TJ562	5.6K	1	
R3055	ERDS2TJ101	100	1	
R3056	ERDS2TJ681	680	1	
R3060	ERDS2TJ563	56K	1	
R3061	ERDS2TJ102	1K	1	
R3062	ERDS2TJ101	100	1	
R3064	ERDS2TJ102	1K	1	
R4551,4552	ERDS2TJ223	22K	2	
R4553	ERDS2TJ333	33K	1	
R4554,4555	ERDS2TJ472	4.7K	2	
R7001	ERDS2TJ183	18K	1	
R7002	ERDS2TJ222	2.2K	1	
R7003	ERDS2TJ183	18K	1	
R7004	AVNE4AA0B102	VARIABLE 1K	1	
	OR			
	EVNE4AA00B13	VARIABLE 1K		
R7005	ERDS2TJ681	680	1	
R7006	ERDS2TKG6802	PRECISION METAL FILM 68K +-2%	1	
R7008	ERDS2TKG1203	PRECISION METAL FILM 120K +-2%	1	
R7009	ERDS2TJ750	75	1	
R7011	ERDS2TJ103	10K	1	
R7012	ERDS2TJ473	47K	1	
R7013	ERDS2TJ104	100K	1	
R7016	ERDS2TJ393	39K	1	

Ref. No.	Part No.	Part Name & Description	Pcs/Set	Remarks
R7017,7018	ERDS2TJ104	100K	2	
R7019	ERDS1TJ151	1/2W 150	1	
R7020	ERDS2TJ103	10K	1	
R7021	ERDS2TJ153	15K	1	
R7022,7023	ERDS2TJ221	220	2	
R7026	ERDS2TJ151	150	1	
R7027	ERDS1TJ221	1/2W 220	1	
R7028	ERDS2TJ101	100	1	
R7030	ERDS2TJ561	560	1	
		CAPACITORS		
C3001	VCYSARH820KB	CERAMIC 50V 82	1	
C3002	VCYSARH471KB	CERAMIC 50V 470P	1	
C3003	VCYSARC103NY	CERAMIC 16V 0.01 +-30%	1	
C3004	VCYSARH820KB	CERAMIC 50V 82	1	
C3016	VCYSARC103NY	CERAMIC 16V 0.01 +-30%	1	
C3027	VCYSARC103NY	CERAMIC 16V 0.01 +-30%	1	
C3028	ECEA1CS470	ELECTROLYTIC 16V 47	1	
	OR ECEA1CU470	ELECTROLYTIC 16V 47		
C3029	ECEA0JS471	ELECTROLYTIC 6.3V 470	1	
	OR ECEA0JU471	ELECTROLYTIC 6.3V 470		
C3030	ECKF1H103ZV	CERAMIC 50V 0.01	1	
	OR	+80%-20%		
	ECKW1H103ZF5	CERAMIC 50V 0.01		
		+80%-20%		
C3031	ECEA0JS470	ELECTROLYTIC 6.3V 47	1	
C3040	VCYSARH102KB	CERAMIC 50V 0.001	1	
C3041	VCYSARC103NY	CERAMIC 16V 0.01 +-30%	1	
C3042	ECEA1CN100S	ELECTROLYTIC 16V 10	1	
C3043	ECKF1H103ZV	CERAMIC 50V 0.01	1	
	OR	+80%-20%		
	ECKW1H103ZF5	CERAMIC 50V 0.01		
		+80%-20%		
C4551	ECEA1CS100	ELECTROLYTIC 16V 10	1	
	OR ECEA1CU100	ELECTROLYTIC 16V 10		
C4555	ECQB1H153KZ	POLYESTER 50V 0.015	1	
	OR VCYW1E153KX	CERAMIC 25V 0.015		
C4556	ECKW1H472ZF5	CERAMIC 50V 0.0047	1	
		+80%-20%		
C4557	ECQB1H333KH	POLYESTER 50V 0.033	1	
C4558	VCYSARC103NY	CERAMIC 16V 0.01 +-30%	1	
C7001	ECEA1ES220	ELECTROLYTIC 25V 22	1	
	OR ECEA1EU220	ELECTROLYTIC 25V 22		
C7002	ECEA1ES4R7	ELECTROLYTIC 25V 4.7	1	
	OR ECEA1EU4R7	ELECTROLYTIC 25V 4.7		
C7003	ECKW1H103ZF5	CERAMIC 50V 0.01	1	
		+80%-20%		
C7004	ECQB1H103KZ	POLYESTER 50V 0.01	1	
	OR ECQM1H103KV	POLYESTER 50V 0.01		
	OR ECQM1H103KZ	POLYESTER 50V 0.01		
C7005	ECKW1H103ZF5	CERAMIC 50V 0.01	1	
		+80%-20%		
C7007	ECQB1H333KZ	POLYESTER 50V 0.033	1	
C7008	ECEA1HS010	ELECTROLYTIC 50V 1	1	
	OR ECEA1HU010	ELECTROLYTIC 50V 1		
C7009	ECKW1H103ZF5	CERAMIC 50V 0.01	1	
		+80%-20%		
C7010	ECEA1CS471	ELECTROLYTIC 16V 470	1	
	OR ECEA1CU471	ELECTROLYTIC 16V 470		
C7012	ECEA1CS470	ELECTROLYTIC 16V 47	1	
	OR ECEA1CU470	ELECTROLYTIC 16V 47		
C7013	ECEA50ZR1	ELECTROLYTIC 50V 0.1	1	
C7014	ECEA0JS102	ELECTROLYTIC 6.3V 1000	1	
	OR ECEA0JU102	ELECTROLYTIC 6.3V 1000		
C7016	ECEA1ES220	ELECTROLYTIC 25V 22	1	
	OR ECEA1EU220	ELECTROLYTIC 25V 22		

Ref. No.	Part No.	Part Name & Description	Pcs/Set	Remarks
C7017	ECEA1CS221	ELECTROLYTIC 16V 220	1	
	OR ECEA1CU221	ELECTROLYTIC 16V 220		
C7020	ECKW1H103ZF5	CERAMIC 50V 0.01	1	
		+80%-20%		
C7021	ECQB1H273KZ	POLYESTER 50V 0.027	1	
	OR ECQM1H273KV	POLYESTER 50V 0.027		
C7023	ECEA0JS221	ELECTROLYTIC 6.3V 220	1	
	OR ECEA0JU221	ELECTROLYTIC 6.3V 220		
C7024,7025	ECCW1H180JC5	CERAMIC 50V 18P +-5%	2	
C7026	ECKW1H103ZF5	CERAMIC 50V 0.01	1	
		+80%-20%		
C7027	ECEA1CS100	ELECTROLYTIC 16V 10	1	
	OR ECEA1CU100	ELECTROLYTIC 16V 10		
C7028	ECEA1HS010	ELECTROLYTIC 50V 1	1	
	OR ECEA1HU010	ELECTROLYTIC 50V 1		
C7029,7030	ECKW1H103ZF5	CERAMIC 50V 0.01	2	
		+80%-20%		
		COILS		
L3001	VLQS05R820K	82	1	
L3002	VLQS05R181K	180	1	
L3007	VLQS05R390K	39	1	
L3012	VLQS05R101K	100	1	
L4551	VLQS66F221K	220	1	
L7001,7002	VLQSL01101K	100	2	
L7003	VLQS66R470K	47	1	
L7004	VLQS66R330K	33	1	
		TRANSFORMER		
T4551	ELM7Q019E	DETECTOR	1	
		PRINTED CIRCUIT BOARD ASSEMBLY		
	VEPS0337A	LUMINANCE C.B.A	1	
	VEPS0508A1	HEAD AMP UNIT	1	
	VEPS0806A	CHROMINANCE C.B.A	1	
	VEQS0257	TV DEMODULATOR UNIT	1	
		MISCELLANEOUS		
	T18S	FASTENER	1	
	VEKS1793	LUG ASS'Y	2	
	VJR3	CLAMPER	1	
	VMAS0953	SIGNAL PROCESS C.B.A ANGLE	1	
	VMTS0035	CUSHION	3	
	VMX0573	SPACER	2	
	VMZS0066	INSULATOR SHEET	1	
	VZFS0006	CLAMPER	1	
		SIGNAL PROCESS C.B.A		(B)
		TRANSISTORS		
Q3001	2SC2021M(Q,R,S)		1	
	OR			
	2SD636(Q,R,S)			
Q3002	2SD636(Q,R,S)		1	
Q3006	2SA937M(Q,R,S)		1	
	OR			
	2SB641(Q,R,S)			
Q3007,3008	2SD636(Q,R,S)		2	
Q3010	2SA937M(Q,R,S)		1	
	OR			
	2SB641(Q,R,S)			
Q4551	2SD636		1	
Q4552	2SA950Y		1	
	OR 2SB643			
Q4553	2SD637		1	
Q7001,7002	2SD637(Q,R,S)		2	
Q7004,7005	2SD637(Q,R,S)		2	
Q7006	2SD636(Q,R,S)		1	
		DIODES		
D3003	EQA02-09-CD	ZENER	1	
	OR MA4091	ZENER		
	OR RD9.1EB2	ZENER		
	OR RD9.1EB3	ZENER		
D3004	MA165		1	
	OR 1SS119			
D3005	EQA02-11	ZENER	1	
	OR MA4110	ZENER		
	OR RD11EB	ZENER		
D3006	MA165		1	
	OR 1SS119			
D7001	MA165		1	
	OR 1SS119			
D7003	MA4100H	ZENER	1	
D7005	MA165		1	
	OR 1SS119			
D7006,7007	RD15EB	ZENER	2	
		RESISTORS		
R3001	EVNE4AA00B23	VARIABLE 2K	1	
R3002	ERDS2TJ821	820	1	
R3003	ERDS2TJ122	1.2K	1	
R3004	ERDS2TJ222	2.2K	1	
R3005	ERDS2TJ681	680	1	
R3006	ERDS2TJ820	82	1	
R3015	ERDS2TJ681	680	1	
R3016	EVNE4AA00B13	VARIABLE 1K	1	
R3017	ERDS2TJ561	560	1	
R3018	ERDS2TJ392	3.9K	1	
R3019	ERDS2TJ333	33K	1	
R3020	ERDS2TJ473	47K	1	
R3030,3031	ERDS2TJ103	10K	2	
R3034	ERDS2TJ471	470	1	
R3035	ERDS2TJ680	68	1	
R3036	ERDS2TJ102	1K	1	
R3037	ERDS2TJ561	560	1	
R3040	ERDS2TJ153	15K	1	
R3041	ERDS2TJ563	56K	1	
R3042	ERDS2TJ223	22K	1	
R3043-3045	ERDS2TJ473	47K	3	
R3046	ERDS2TJ333	33K	1	
R3048	ERDS2TJ682	6.8K	1	
R3049,3050	ERDS2TJ332	3.3K	2	
R3051	ERDS2TJ102	1K	1	
R3054	ERDS2TJ562	5.6K	1	
R3055	ERDS2TJ101	100	1	
R3056	ERDS2TJ681	680	1	
R3060	ERDS2TJ563	56K	1	
R3061	ERDS2TJ102	1K	1	
R3064	ERDS2TJ102	1K	1	

Ref. No.	Part No.	Part Name & Description		Pcs/Set	Remarks
R4551,4552	ERDS2TJ223		22K	2	
R4553	ERDS2TJ333		33K	1	
R4554,4555	ERDS2TJ472		4.7K	2	
R7002	ERDS2TJ222		2.2K	1	
R7003	ERDS2TJ183		18K	1	
R7004	AVNE4AA0B102	VARIABLE	1K	1	
	OR				
	EVNE4AA00B13	VARIABLE	1K		
R7005	ERDS2TJ681		680	1	
R7006	ER0S2TKG6802	PRECISION METAL FILM	68K +-2%	1	
R7008	ER0S2TKG1203	PRECISION METAL FILM	120K +-2%	1	
R7011	ERDS2TJ103		10K	1	
R7012	ERDS2TJ473		47K	1	
R7013	ERDS2TJ104		100K	1	
R7016	ERDS2TJ393		39K	1	
R7017,7018	ERDS2TJ104		100K	2	
R7019	ERDS1TJ151		1/2W 150	1	
R7020	ERDS2TJ103		10K	1	
R7021	ERDS2TJ153		15K	1	
R7022,7023	ERDS2TJ221		220	2	
R7026	ERDS2TJ151		150	1	
R7027	ERDS1TJ221		1/2W 220	1	
R7028	ERDS2TJ101		100	1	
R7029	ERDS2TJ750		75	1	
		CAPACITORS			
C3001	VCYSARH820KB	CERAMIC	50V 82	1	
C3002	VCYSARH471KB	CERAMIC	50V 470P	1	
C3003	VCYSARC103NY	CERAMIC	16V 0.01 +-30%	1	
C3004	VCYSARH820KB	CERAMIC	50V 82	1	
C3016	VCYSARC103NY	CERAMIC	16V 0.01 +-30%	1	
C3027	VCYSARC103NY	CERAMIC	16V 0.01 +-30%	1	
C3028	ECEA1CS470	ELECTROLYTIC	16V 47	1	
	OR ECEA1CU470	ELECTROLYTIC	16V 47		
C3029	ECEA0JS471	ELECTROLYTIC	6.3V 470	1	
C3030	ECKW1H103ZF5	CERAMIC	50V 0.01	1	
			+80%-20%		
C3031	ECEA0JS470	ELECTROLYTIC	6.3V 47	1	
	OR ECEA0JU470	ELECTROLYTIC	6.3V 47		
C3040	VCYSARH102KB	CERAMIC	50V 0.001	1	
C3041	VCYSARC103NY	CERAMIC	16V 0.01 +-30%	1	
C3042	ECEA1CN100S	ELECTROLYTIC	16V 10	1	
C3043	ECKW1H103ZF5	CERAMIC	50V 0.01	1	
			+80%-20%		
C4551	ECEA1CS100	ELECTROLYTIC	16V 10	1	
C4555	VCYW1E153KX	CERAMIC	25V 0.015	1	
C4556	ECKW1H472ZF5	CERAMIC	50V 0.0047	1	
			+80%-20%		
C4557	ECQB1H333JZ	POLYESTER	50V 0.033 +-5%	1	
	OR ECQB1H333KH	POLYESTER	50V 0.033		
	OR ECQB1H333KZ	POLYESTER	50V 0.033		
C4558	VCYSARC103NY	CERAMIC	16V 0.01 +-30%	1	
C7001	ECEA1ES220	ELECTROLYTIC	25V 22	1	
	OR ECEA1EU220	ELECTROLYTIC	25V 22		
C7002	ECEA1ES4R7	ELECTROLYTIC	25V 4.7	1	
	OR ECEA1EU4R7	ELECTROLYTIC	25V 4.7		
C7003	ECKW1H103ZF5	CERAMIC	50V 0.01	1	
			+80%-20%		
C7004	ECQB1H103KZ	POLYESTER	50V 0.01	1	
	OR ECQM1H103KV	POLYESTER	50V 0.01		
	OR ECQM1H103KZ	POLYESTER	50V 0.01		
C7005	ECKW1H103ZF5	CERAMIC	50V 0.01	1	
			+80%-20%		
C7007	ECQB1H333KZ	POLYESTER	50V 0.033	1	
C7008	ECEA1HS010	ELECTROLYTIC	50V 1	1	
	OR ECEA1HU010	ELECTROLYTIC	50V 1		
C7009	ECKW1H103ZF5	CERAMIC	50V 0.01	1	
			+80%-20%		

Ref. No.	Part No.	Part Name & Description		Pcs/Set	Remarks
C7010	ECEA1CS471	ELECTROLYTIC	16V 470	1	
	OR ECEA1CU471	ELECTROLYTIC	16V 470		
C7012	ECEA1CS470	ELECTROLYTIC	16V 47	1	
	OR ECEA1CU470	ELECTROLYTIC	16V 47		
C7013	ECEA50ZR1	ELECTROLYTIC	50V 0.1	1	
C7014	ECEA0JS102	ELECTROLYTIC	6.3V 1000	1	
	OR ECEA0JU102	ELECTROLYTIC	6.3V 1000		
C7016	ECEA1ES220	ELECTROLYTIC	25V 22	1	
	OR ECEA1EU220	ELECTROLYTIC	25V 22		
C7017	ECEA1CS221	ELECTROLYTIC	16V 220	1	
	OR ECEA1CU221	ELECTROLYTIC	16V 220		
C7020	ECKW1H103ZF5	CERAMIC	50V 0.01	1	
			+80%-20%		
C7021	ECQB1H273KZ	POLYESTER	50V 0.027	1	
	OR ECQM1H273KV	POLYESTER	50V 0.027		
C7023	ECEA0JS221	ELECTROLYTIC	6.3V 220	1	
	OR ECEA0JU221	ELECTROLYTIC	6.3V 220		
C7024,7025	ECCW1H180JC5	CERAMIC	50V 18P +-5%	2	
C7026	ECKW1H103ZF5	CERAMIC	50V 0.01	1	
			+80%-20%		
C7027	ECEA1CS100	ELECTROLYTIC	16V 10	1	
	OR ECEA1CU100	ELECTROLYTIC	16V 10		
C7028	ECEA1HS010	ELECTROLYTIC	50V 1	1	
	OR ECEA1HU010	ELECTROLYTIC	50V 1		
		COILS			
L3001	VLQS04R820K		82	1	
	OR VLQS66R820K		82		
L3002	VLQS66R101K		100	1	
L3012	VLQS66R101K		100	1	
L4551	VLQS66F221K		220	1	
L7001,7002	VLQSL01101K		100	2	
L7003	VLQS66R470K		47	1	
L7004	VLQS66R330K		33	1	
		TRANSFORMER			
T4551	ELM7Q019E	DETECTOR		1	
		PRINTED CIRCUIT BOARD ASSEMBLY			
	VEPS0337A	LUMINANCE C.B.A		1	
	VEPS0508A1	HEAD AMP UNIT		1	
	VEPS0806A	CHROMINANCE C.B.A		1	
	VEQS0257	TV DEMODULATOR UNIT		1	
		MISCELLANEOUS			
	T18S	FASTENER		1	
	VEKS1793	LUG ASS'Y		1	
	VJR3	CLAMPER		1	
	VMAS0953	SIGNAL PROCESS C.B.A ANGLE		1	
	VMTS0035	CUSHION		10	
	VZFS0006	CLAMPER		1	
		POWER SUPPLY C.B.A			(A)

Ref. No.		Part No.	Part Name & Description	Pcs/Set	Remarks
			INTEGRATED CIRCUITS		
IC1001		TLP521-YG		1	
		OR ON3111			
			TRANSISTORS		
Q1001	⚠	2SD1330		1	
Q1002		2SB976		1	
Q1003		2SB642		1	
Q1004	⚠	2SC3170		1	
	⚠	OR 2SC3310			
Q1006		2SD1273		1	
Q1007		2SD637		1	
Q1009		2SD636		1	
Q1010		2SB642		1	
Q1011		2SB644		1	
Q1012		2SB642		1	
Q1013		2SD638(Q,R)		1	
			DIODES		
D1001	⚠	S1VB40		1	
	⚠	OR 1G4B41			
D1002	⚠	ERB43-04		1	
	⚠	OR S1K40			
D1003-1005		MA165		3	
D1006		MA4130L	ZENER	1	
D1007		MA170		1	
D1008		MA165		1	
D1009	⚠	MA167		1	
D1010		ERB43-04		1	
		OR MA182			
		OR S1K40			
D1011		ERD29-02H3		1	
D1012		ERB43-04		1	
		OR MA182			
		OR S1K40			
D1013		MA4068M	ZENER	1	
D1014		MA165		1	
D1015		ERB81-004		1	
D1019		MA4051H	ZENER	1	
D1020		MA165		1	
D1021	⚠	MA4051H	ZENER	1	
D1022		MA4130L	ZENER	1	
D1023,1024		MA165		2	
D1026		MA4047	ZENER	1	
D1030		ERB43-04		1	
		OR S1K40			
			RESISTORS		
R1001		ERDS2TJ334	330K	1	
R1002	⚠	ERG3SJ333	METAL OXIDE 3W 33K	1	
	⚠	OR KRG3SJ333	METAL OXIDE 3W 33K		
R1003	⚠	ERD25FJ6R2	6.2	1	
R1004	⚠	ERD25FJ222	2.2K	1	
R1005	⚠	ERD25FJ152	1.5K	1	
R1006	⚠	ERD25FJ4R7	4.7	1	
R1008	⚠	ERD25FJ472	4.7K	1	
R1009		ERDS2TJ471	470	1	
R1010	⚠	ERD25FJ560	56	1	
R1011	⚠	ERD25FJ330	33	1	
R1012		ERDS2TJ331	330	1	
R1013		ERDS2TJ104	100K	1	
R1015		ERDS1TJ180	1/2W 18	1	
R1017		ERDS2TJ221	220	1	
R1018		ERDS2TJ562	5.6K	1	

Ref. No.		Part No.	Part Name & Description	Pcs/Set	Remarks
R1019		ERDS2TJ103	10K	1	
R1020		ERDS2TJ562	5.6K	1	
R1021		ERDS2TJ221	220	1	
R1022		ERDS2TJ3R3	3.3	1	
R1023	⚠	ERDS1FJ1R0	POLYESTER 1/2W 1	1	
R1025	⚠	ERC12ZGK275	SOLID 1/2W 2.7M +-10%	1	
R1026		ERDS2TJ472	4.7K	1	
R1027,1028		ERDS2TJ104	100K	2	
R1029		ERDS2TJ103	10K	1	
R1033	⚠	ERD25FJ472	4.7K	1	
R1034		ERDS2TJ334	330K	1	
R1035	⚠	ERD25FJ150	15	1	
R1036	⚠	ERD25FJ220	22	1	
R1037		ERDS2TJ562	5.6K	1	
R1038		ERDS2TJ471	470	1	
R1039	⚠	ERD25FJ330	33	1	
R1040		ERDS2TJ333	33K	1	
R1041,1042	⚠	ERD2FCGP121	120 +-2%	2	
	⚠	OR ERD2FCG121	120 +-2%		
R1044		ERDS2TJ560	56	1	
R1045		ERDS2TJ473	47K	1	
			CAPACITORS		
C1001,1002	⚠	VCKS0004	CERAMIC 0.01	2	
	⚠	OR VCKS0005	CERAMIC 0.01		
C1003,1004	⚠	VCKS0001	CERAMIC 0.001	2	
C1005	⚠	ECEA2DS121M	ELECTROLYTIC 200V 120	1	
C1006	⚠	ECEA2EG4R7Y	ELECTROLYTIC 250V 4.7	1	
	⚠	OR KM250VB4R7	ELECTROLYTIC 250V 4.7		
C1007		ECEA1EG220S	ELECTROLYTIC 25V 22	1	
		OR KMA16VB-22	ELECTROLYTIC 16V 22		
C1008	⚠	VCKS0001	CERAMIC 0.001	1	
C1009	⚠	KM50VB-22	ELECTROLYTIC 50V 22	1	
C1010		ECEA1HG2R2S	ELECTROLYTIC 50V 2.2	1	
		OR KMA50VB-2R2	ELECTROLYTIC 50V 2.2		
C1011		ECQB1H153JZ	POLYESTER 50V 0.015 +-5%	1	
C1012		ECEA1HU470X	ELECTROLYTIC 50V 47	1	
		OR SXE50VB-68	ELECTROLYTIC 50V 68		
C1013,1014		ECEA1CU222X	ELECTROLYTIC 16V 2200	2	
		OR SXE16VB2200	ELECTROLYTIC 16V 2200		
C1015		ECEA1HU470X	ELECTROLYTIC 50V 47	1	
		OR SXE50VB-68	ELECTROLYTIC 50V 68		
C1016,1017		ECEA0JF102W	ELECTROLYTIC 6.3V 1000	2	
		OR			
		SXE6.3VB1200	ELECTROLYTIC 6.3V 1200		
C1019,1020		ECQB1H104JZ	CERAMIC 50V 0.1 +-5%	2	
C1021,1022		ECEA1HG100S	ELECTROLYTIC 50V 10	2	
		OR KMA16VB-10	ELECTROLYTIC 16V 10		
C1025		ECEA1CU222X	ELECTROLYTIC 16V 2200	1	
		OR SXE16VB2200	ELECTROLYTIC 16V 2200		
C1026		ECEA0JF102W	ELECTROLYTIC 6.3V 1000	1	
		OR			
		SXE6.3VB1200	ELECTROLYTIC 6.3V 1200		
C1027		ECKW1H103ZF5	CERAMIC 50V 0.01 +80%-20%	1	
C1029		ECEA1HG100S	ELECTROLYTIC 50V 10	1	
		OR KMA16VB-10	ELECTROLYTIC 16V 10		
C1030		ECEA1HG100S	ELECTROLYTIC 50V 10	1	
		OR KM50VB-10	ELECTROLYTIC 50V 10		
C1031-1033		ECKW1H102KB5	CERAMIC 50V 0.001	3	
C1034		ECKW1H103ZF5	CERAMIC 50V 0.01 +80%-20%	1	
C1035		ECKW1H102KB5	CERAMIC 50V 0.001	1	
C1039,1040		ECKW1H103ZF5	CERAMIC 50V 0.01 +80%-20%	2	
C1041		ECEA1AG101G	ELECTROLYTIC 10V 100	1	
		OR			
		KMA6.3VB-100	ELECTROLYTIC 6.3V 100		

Ref. No.	Part No.	Part Name & Description	Pcs / Set	Remarks
C1042	ECKW1H1032F5	CERAMIC 50V 0.01	1	
		+80%-20%		
C1043	ECQM1H103KV	POLYESTER 50V 0.01	1	
	OR ECQM1H103KZ	POLYESTER 50V 0.01		
		COILS		
L1001	ELF18D314		1	
	OR VLQS0002			
L1002	VLQS11H560M	56 +-20%	1	
L1003	VLQS0006	22	1	
	OR VLQS9H220M	22		
L1004	VLQS0007	100	1	
	OR VLQS9H101K	100		
L1007	VLQS05R4R7K	4.7	1	
L1008	VLQS66R220K	22	1	
		PIN HEADER		
P1004	VJPS0013	5P	1	
P1006	VJPS0012	4P	1	
		FUSE		
F1001	XBA1C16NU100	1.6A	1	
		TRANSFORMER		
T1001	ETS35K80A		1	
		MISCELLANEOUS		
	VSCS0543	SHIELD CASE	1	
		MISCELLANEOUS		
	TJC6320	FUSE HOLDER	2	
	TMM7443	CLAMPER	1	
	VMTS0035	CUSHION	2	
	VMZS0130	INSULATOR PLATE	1	
	VSCS0403	HEAT SINK PLATE	1	
	VSCS0542	SHIELD CASE	1	
	VSCS0544	SHIELD CASE	1	
		POWER SUPPLY C.B.A		(B)
		INTEGRATED CIRCUITS		
IC1001	TLP521-YG		1	
	OR ON3111			
		TRANSISTORS		
Q1001	2SD1330(R,S,T)		1	
Q1002	2SB976		1	
Q1003	2SB642		1	
Q1004	2SC3170		1	
	OR 2SC3310			
Q1006	2SD1273		1	
Q1007	2SD637		1	

Ref. No.	Part No.	Part Name & Description	Pcs / Set	Remarks
Q1009	2SD636		1	
Q1010	2SB642		1	
Q1011	2SB644		1	
Q1012	2SB642		1	
Q1013	2SD638(Q,R)		1	
		DIODES		
D1001	S1VB40		1	
	OR 1G4B41			
D1002	D1R100		1	
D1003-1005	MA165		3	
D1006	MA4130H		1	
D1007	MA170		1	
D1008	MA165		1	
D1009	MA167		1	
D1010	D1K40		1	
	OR ERB43-04			
	OR MA182			
D1011	ERD29-02H3		1	
D1012	D1K40		1	
	OR ERB43-04			
	OR MA182			
D1013	MA4068M	ZENER	1	
D1014	MA165		1	
D1015	ERB81-004		1	
D1019	MA4051M	ZENER	1	
D1020	MA165		1	
D1021	MA4051M	ZENER	1	
D1022	MA4130L	ZENER	1	
D1023,1024	MA165		2	
D1026	MA4501	ZENER	1	
	OR RD5.1EB	ZENER		
	OR EQA02-05	ZENER		
D1030	D1K40		1	
	OR ERB43-04			
D7531,7532	MA4068	ZENER	2	
		RESISTORS		
R1001	ERDS2TJ334	330K	1	
R1002	ERG3SJ333	METAL OXIDE 3W 33K	1	
	OR KRG3SJ333	METAL OXIDE 3W 33K		
R1003	ERD25FJ6R2	6.2	1	
R1004	ERD25FJ222	2.2K	1	
R1005	ERD25FJ152	1.5K	1	
R1006	ERD25FJ4R7	4.7	1	
R1008	ERD25FJ472	4.7K	1	
R1009	ERDS2TJ471	470	1	
R1010	ERD25FJ560	56	1	
R1011	ERD25FJ330	33	1	
R1012	ERDS2TJ331	330	1	
R1013	ERDS2TJ104	100K	1	
R1015	ERDS1TJ180	1/2W 18	1	
R1017	ERDS2TJ221	220	1	
R1018	ERDS2TJ562	5.6K	1	
R1019	ERDS2TJ103	10K	1	
R1020	ERDS2TJ562	5.6K	1	
R1021	ERDS2TJ221	220	1	
R1022	ERDS2TJ3R3	3.3	1	
R1023	ERDS1FJ1R0	POLYESTER 1/2W 1	1	
R1025	ERG12GK275	SOLID 1/2W 2.7M +-10%	1	
R1026	ERDS2TJ472	4.7K	1	
R1027,1028	ERDS2TJ104	100K	2	
R1029	ERDS2TJ103	10K	1	
R1033	ERD25FJ472	4.7K	1	
R1034	ERDS2TJ334	330K	1	
R1035	ERD25FJ150	15	1	
R1036	ERD25FJ220	22	1	
R1037	ERDS2TJ562	5.6K	1	

Ref. No.		Part No.	Part Name & Description				Pcs / Set	Remarks
R1038		ERDS2TJ471				470	1	
R1039	⚠	ERD25FJ330				33	1	
R1040		ERDS2TJ333				33K	1	
R1041,1042	⚠	ERD2FCGD121			120	+-2%	2	
	⚠	OR ERD2FCGP121			120	+-2%		
R1044		ERDS2TJ560				56	1	
R1045		ERDS2TJ473				47K	1	
			CAPACITORS					
C1001,1002	⚠	VCKS0004	CERAMIC			0.01	2	
	⚠	OR VCKS0005	CERAMIC			0.01		
C1003,1004	⚠	VCKS0001	CERAMIC			0.001	2	
C1005	⚠	ECEA2DS121M	ELECTROLYTIC		200V	120	1	
C1006	⚠	ECEA2EG4R7Y	ELECTROLYTIC		250V	4.7	1	
	⚠	OR KM250VB4R7	ELECTROLYTIC		250V	4.7		
C1007		ECEA1EG220S	ELECTROLYTIC		25V	22	1	
		OR KMA16VB-22	ELECTROLYTIC		16V	22		
C1008	⚠	VCKS0001	CERAMIC			0.001	1	
C1009	⚠	KM50VB-22	ELECTROLYTIC		50V	22	1	
C1010		ECEA1HG2R2S	ELECTROLYTIC		50V	2.2	1	
		OR KMA50VB-2R2	ELECTROLYTIC		50V	2.2		
C1011		ECQB1H153JZ	POLYESTER	50V	0.015	+-5%	1	
C1012		ECEA1HU470X	ELECTROLYTIC		50V	47	1	
		OR SXE50VB-68	ELECTROLYTIC		50V	68		
C1013,1014		ECEA1CU222X	ELECTROLYTIC		16V	2200	2	
		OR SXE16VB2200	ELECTROLYTIC		16V	2200		
C1015		ECEA1HU470X	ELECTROLYTIC		50V	47	1	
		OR SXE50VB-68	ELECTROLYTIC		50V	68		
C1016,1017		ECEA0JF102W	ELECTROLYTIC		6.3V	1000	2	
		OR						
		SXE6.3VB1200	ELECTROLYTIC		6.3V	1200		
C1019		ECQV05104JC	POLYESTER	50V	0.1	+-5%	1	
		OR ECQV05104JZ	POLYESTER	50V	0.1	+-5%		
		OR ECQV1H104JZ	POLYESTER	50V	0.1	+-5%		
C1020		ECQV05104JC	POLYESTER	50V	0.1	+-5%	1	
		OR ECQV05104JZ	POLYESTER	50V	0.1	+-5%		
		OR ECQV1H104JZ	POLYESTER	50V	0.1	+-5%		
C1021		KMA16VB-10	ELECTROLYTIC		16V	10	1	
C1022		ECEA1HG100S	ELECTROLYTIC		50V	10	1	
		OR KMA16VB-10	ELECTROLYTIC		16V	10		
C1025		ECEA1CU222X	ELECTROLYTIC		16V	2200	1	
		OR SXE16VB2200	ELECTROLYTIC		16V	2200		
C1026		ECEA0JF102W	ELECTROLYTIC		6.3V	1000	1	
		OR						
		SXE6.3VB1200	ELECTROLYTIC		6.3V	1200		
C1027		ECKW1H103ZF5	CERAMIC		50V	0.01	1	
						+80%-20%		
C1029		ECEA1HG100S	ELECTROLYTIC		50V	10	1	
		OR KMA16VB-10	ELECTROLYTIC		16V	10		
C1030		ECEA1HG100S	ELECTROLYTIC		50V	10	1	
		OR KM50VB-10	ELECTROLYTIC		50V	10		
C1031~1033		ECKW1H102KB5	CERAMIC		50V	0.001	3	
C1034		ECKW1H103ZF5	CERAMIC		50V	0.01	1	
						+80%-20%		
C1035		ECKW1H102KB5	CERAMIC		50V	0.001	1	
C1039,1040		ECKW1H103ZF5	CERAMIC		50V	0.01	2	
						+80%-20%		
C1041		ECEA1AG101S	ELECTROLYTIC		6.3V	100	1	
		OR KM6.3VB-100	ELECTROLYTIC		6.3V	100		
C1042		ECKW1H103ZF5	CERAMIC		50V	0.01	1	
						+80%-20%		
C1043		ECQM1H103KV	POLYESTER		50V	0.01	1	
		OR ECQM1H103KZ	POLYESTER		50V	0.01		

Ref. No.		Part No.	Part Name & Description		Pcs / Set	Remarks
			COILS			
L1001	⚠	ELF18D314			1	
	⚠	OR VLQS0002				
L1002		VLQS11H560K		56	1	
		OR VLQS11H560M		56 +-20%		
L1003		VLQS9H220M		22	1	
L1004		VLQS0007		100	1	
		OR VLQS9H101K		100		
L1007		VLQS05R4R7K		4.7	1	
L1008		VLQS66R220K		22	1	
			PIN HEADER			
P1004		VJPS0013		5P	1	
P1005		VJPS0022		7P	1	
P1006		VJPS0012		4P	1	
			FUSE			
F1001	⚠	XBA1C16NU1GG		1.6A	1	
			TRANSFORMER			
T1001	⚠	ETS35K80A			1	
			MISCELLANEOUS			
		TJC6320	FUSE HOLDER		2	
		VBM76680	BARRIER		1	
		VMTS0035	CUSHION		1	
		VMTS0044	CUSHION		1	
		VMZS0130	INSULATOR PLATE		1	
		VQLS0768	FUSE CAUTION LABEL		1	
		VSCS0403	HEAT SINK PLATE		1	
		VSCS0517	SHIELD CASE		1	
		VSCS0542	SHIELD CASE		1	
		VSCS0543	SHIELD CASE		1	
		VSCS0544	SHIELD CASE		1	
			AUDIO C.B.A			(B)
			INTEGRATED CIRCUITS			
IC4002		AN6209K			1	
IC4003		AN90C21			1	
IC4004		HA12045			1	
IC4006		AN6209K			1	
IC4007		AN90C21			1	
IC4008		TA7348P			1	
IC4009		AN6552			1	
		OR BA4558				
		OR TA75557P				
			TRANSISTORS			
Q4001		2SD636(R,S)			1	
Q4002		2SD637(Q,R,S)			1	
Q4003,4004		2SD636(Q,R,S)			2	
Q4005,4006		2SB641(Q,R)			2	
Q4007,4008		2SD636(Q,R,S)			2	
Q4009		2SB641(R,S)			1	

Ref. No.	Part No.	Part Name & Description		Pcs / Set	Remarks
Q4010,4011	2SD636(Q,R,S)			2	
Q4012,4013	2SD1330(R,S,T)			2	
Q4015	2SD636(Q,R,S)			1	
Q4016,4017	2SB641(R,S)			2	
Q4018,4019	2SD636(Q,R,S)			2	
Q4020	2SB641(R,S)			1	
		RESISTORS			
R4001	ERDS2TJ333		33K	1	
R4002	ERDS2TJ181		180	1	
R4003	ERDS2TJ101		100	1	
R4004	ERDS2TJ331		330	1	
R4005	EVN38CA00B53	VARIABLE	5K	1	
R4006	ERDS2TJ124		120K	1	
R4007	ERDS2TJ103		10K	1	
R4008,4009	ERDS2TJ472		4.7K	2	
R4010	EVN38CA00B54	VARIABLE	50K	1	
R4011	ERDS2TJ332		3.3K	1	
R4012	ERDS2TJ152		1.5K	1	
R4013	ERDS2TJ182		1.8K	1	
R4014	ERDS2TJ333		33K	1	
R4015	ERDS2TJ225		2.2M	1	
R4016	ERDS2TJ123		12K	1	
R4017	ERDS2TJ101		100	1	
R4018	ERDS2TJ821		820	1	
R4019	ERDS2TJ822		8.2K	1	
R4020	ERDS2TJ223		22K	1	
R4021	ERDS2TJ102		1K	1	
R4022	ERDS2TJ223		22K	1	
R4023	ERDS2TJ183		18K	1	
R4024	ERDS2TJ271		270	1	
R4025	EVN38CA00B24	VARIABLE	20K	1	
R4026	ERDS2TJ101		100	1	
R4027	ERDS2TJ331		330	1	
R4028	ERDS2TJ271		270	1	
R4029	ERDS2TJ152		1.5K	1	
R4030	ERDS2TJ272		2.7K	1	
R4031	ERDS2TJ332		3.3K	1	
R4032	ERDS2TJ330		33	1	
R4033	ERDS2TJ473		47K	1	
R4034	ERDS2TJ682		6.8K	1	
R4035	ERDS2TJ104		100K	1	
R4036	ERDS2TJ101		100	1	
R4037	ERDS2TJ104		100K	1	
R4038	ERDS2TJ103		10K	1	
R4039	ERDS2TJ100		10	1	
R4044,4045	ERDS2TJ102		1K	2	
R4051	ERDS2TJ333		33K	1	
R4052	ERDS2TJ181		180	1	
R4053	ERDS2TJ101		100	1	
R4054	ERDS2TJ331		330	1	
R4055	EVN38CA00B53	VARIABLE	5K	1	
R4056	ERDS2TJ124		120K	1	
R4057	ERDS2TJ103		10K	1	
R4058,4059	ERDS2TJ472		4.7K	2	
R4060	EVN38CA00B54	VARIABLE	50K	1	
R4061	ERDS2TJ332		3.3K	1	
R4062	ERDS2TJ152		1.5K	1	
R4063	ERDS2TJ182		1.8K	1	
R4064	ERDS2TJ333		33K	1	
R4065	ERDS2TJ225		2.2M	1	
R4066	ERDS2TJ123		12K	1	
R4067	ERDS2TJ101		100	1	
R4068	ERDS2TJ821		820	1	
R4069	ERDS2TJ822		8.2K	1	
R4070	ERDS2TJ223		22K	1	
R4071	ERDS2TJ102		1K	1	
R4072	ERDS2TJ223		22K	1	

Ref. No.	Part No.	Part Name & Description		Pcs / Set	Remarks
R4073	ERDS2TJ183		18K	1	
R4074	ERDS2TJ271		270	1	
R4075	EVN38CA00B24	VARIABLE	20K	1	
R4076	ERDS2TJ101		100	1	
R4077	ERDS2TJ331		330	1	
R4078	ERDS2TJ271		270	1	
R4079	ERDS2TJ152		1.5K	1	
R4080	ERDS2TJ272		2.7K	1	
R4081	ERDS2TJ332		3.3K	1	
R4082	ERDS2TJ330		33	1	
R4083	ERDS2TJ473		47K	1	
R4084	ERDS2TJ682		6.8K	1	
R4085	ERDS2TJ104		100K	1	
R4086	ERDS2TJ101		100	1	
R4087	ERDS2TJ104		100K	1	
R4088	ERDS2TJ103		10K	1	
R4089	ERDS2TJ100		10	1	
R4101	ERDS2TJ222		2.2K	1	
R4102	ERDS2TJ103		10K	1	
R4103	ERDS2TJ562		5.6K	1	
R4104	ERDS2TJ822		8.2K	1	
R4105	ERDS2TJ220		22	1	
R4106	ERDS2TJ333		33K	1	
R4107	ERDS2TJ103		10K	1	
R4108	ERDS2TJ472		4.7K	1	
R4109	ERDS2TJ223		22K	1	
R4110-4112	ERDS2TJ562		5.6K	3	
R4113,4114	ERDS2TJ273		27K	2	
R4115,4116	ERDS2TJ473		47K	2	
R4117-4119	ERDS2TJ562		5.6K	3	
R4120	ERDS2TJ104		100K	1	
R4121	ERDS2TJ102		1K	1	
R4122	ERDS2TJ392		3.9K	1	
R4123,4124	ERDS2TJ473		47K	2	
R4126,4127	ERDS2TJ822		8.2K	2	
R4128	ERDS2TJ681		680	1	
R4129-4135	ERDS2TJ223		22K	7	
R4136,4137	ERDS2TJ103		10K	2	
R4138,4139	ERDS2TJ473		47K	2	
R4140,4141	ERDS2TJ222		2.2K	2	
		CAPACITORS			
C4002	ECKW1H471KB5	CERAMIC	50V 470P	1	
C4003	ECEA50M1R	ELECTROLYTIC	50V 1	1	
C4004	ECKW1H471KB5	CERAMIC	50V 470P	1	
C4005	ECEA50ZR33	ELECTROLYTIC	50V 0.33	1	
C4006	ECEA50ZR22	ELECTROLYTIC	50V 0.22	1	
C4007	ECEA1CS220	ELECTROLYTIC	16V 22	1	
C4008	ECQB1H333JZ	POLYESTER	50V 0.033 +-5%	1	
	OR ECQV05333JZ	POLYESTER	50V 0.033 +-5%		
	OR ECQV1H333JZ	POLYESTER	50V 0.033 +-5%		
C4009	ECEA1CS100	ELECTROLYTIC	16V 10	1	
C4010	ECEA50ZR33	ELECTROLYTIC	50V 0.33	1	
C4011	ECEA1CS100	ELECTROLYTIC	16V 10	1	
C4012	ECEA1HSR22	ELECTROLYTIC	50V 0.22	1	
C4013	ECEA0JS101	ELECTROLYTIC	6.3V 100	1	
C4014	ECEA1CS100	ELECTROLYTIC	16V 10	1	
C4015	ECKW1H102KB5	CERAMIC	50V 0.001	1	
C4016	ECEA1CS100	ELECTROLYTIC	16V 10	1	
C4017	ECEA1CS220	ELECTROLYTIC	16V 22	1	
C4018	ECEA1CS330	ELECTROLYTIC	16V 33	1	
C4019	ECEA1HS010	ELECTROLYTIC	50V 1	1	
C4020	ECQV05563JZ	POLYESTER	50V 0.056 +-5%	1	
	OR ECQV1H563JZ	POLYESTER	50V 0.056 +-5%		
C4021	ECEA1AS330	ELECTROLYTIC	10V 33	1	
C4022,4023	ECEA50Z0R1	ELECTROLYTIC	50V 0.1	2	
C4024	ECEA1AS330	ELECTROLYTIC	10V 33	1	
C4025	VCYW1C104MX	CERAMIC	16V 0.1	1	

Ref. No.	Part No.	Part Name & Description			Pcs/Set	Remarks
				+-20%		
C4026	ECEA1CKN100	ELECTROLYTIC	16V	10	1	
C4027	ECEA1HS010	ELECTROLYTIC	50V	1	1	
C4028	ECEA1CK100	ELECTROLYTIC	16V	10	1	
C4029	ECEA1CKN100	ELECTROLYTIC	16V	10	1	
C4030	ECQB1H333JZ	POLYESTER	50V	0.033 +-5%	1	
	OR ECQV05333JZ	POLYESTER	50V	0.033 +-5%		
	OR ECQV1H333JZ	POLYESTER	50V	0.033 +-5%		
C4031	ECQB1H472JZ	POLYESTER	50V	0.0047 +-5%	1	
	OR ECQM1H472JV	POLYESTER	50V	0.0047 +-5%		
C4032	ECEA1EKL4R7	ELECTROLYTIC	25V	4.7	1	
C4033	ECEA1CKN100	ELECTROLYTIC	16V	10	1	
C4034	ECQV05473JZ	POLYESTER	50V	0.047 +-5%	1	
	OR ECQV1H473JZ	POLYESTER	50V	0.047 +-5%		
C4035	ECQB1H183JZ	POLYESTER	50V	0.018 +-5%	1	
	OR ECQV05183JZ	POLYESTER	50V	0.018 +-5%		
	OR ECQV1H183JZ	POLYESTER	50V	0.018 +-5%		
C4036	ECEA1HK010	ELECTROLYTIC	50V	1	1	
C4037	ECSF1CD224KD	THERMISTER	16V	0.22	1	
C4038	ECSF1CD684KD	THERMISTER	16V	0.68	1	
C4039	ECKW1H103ZF5	CERAMIC	50V	0.01	1	
				+80%-20%		
C4051	ECEA0JK221	ELECTROLYTIC	6.3V	220	1	
C4052	ECKW1H471KB5	CERAMIC	50V	470P	1	
C4053	ECEA50M1R	ELECTROLYTIC	50V	1	1	
C4054	ECKW1H471KB5	CERAMIC	50V	470P	1	
C4055	ECEA50ZR33	ELECTROLYTIC	50V	0.33	1	
C4056	ECEA50ZR22	ELECTROLYTIC	50V	0.22	1	
C4057	ECEA1CS220	ELECTROLYTIC	16V	22	1	
C4058	ECQB1H333JZ	POLYESTER	50V	0.033 +-5%	1	
	OR ECQV05333JZ	POLYESTER	50V	0.033 +-5%		
	OR ECQV1H333JZ	POLYESTER	50V	0.033 +-5%		
C4059	ECEA1CS100	ELECTROLYTIC	16V	10	1	
C4060	ECEA50ZR33	ELECTROLYTIC	50V	0.33	1	
C4061	ECEA1CS100	ELECTROLYTIC	16V	10	1	
C4062	ECEA1HSR22	ELECTROLYTIC	50V	0.22	1	
C4063	ECEA0JS101	ELECTROLYTIC	6.3V	100	1	
C4064	ECEA1CS100	ELECTROLYTIC	16V	10	1	
C4065	ECKW1H102KB5	CERAMIC	50V	0.001	1	
C4066	ECEA1CS100	ELECTROLYTIC	16V	10	1	
C4067	ECEA1CS220	ELECTROLYTIC	16V	22	1	
C4068	ECEA1CS330	ELECTROLYTIC	16V	33	1	
C4069	ECEA1HS010	ELECTROLYTIC	50V	1	1	
C4070	ECQV05563JZ	POLYESTER	50V	0.056 +-5%	1	
	OR ECQV1H563JZ	POLYESTER	50V	0.056 +-5%		
C4071	ECEA1AS330	ELECTROLYTIC	10V	33	1	
C4072,4073	ECEA50Z0R1	ELECTROLYTIC	50V	0.1	2	
C4074	ECEA1AS330	ELECTROLYTIC	10V	33	1	
C4075	VCYW1C104MX	CERAMIC	16V	0.1	1	
				+-20%		
C4076	ECEA1CKN100	ELECTROLYTIC	16V	10	1	
C4077	ECEA1HS010	ELECTROLYTIC	50V	1	1	
C4078	ECEA1CK470	ELECTROLYTIC	16V	47	1	
C4079	ECEA1CKN100	ELECTROLYTIC	16V	10	1	
C4080	ECQB1H333JZ	POLYESTER	50V	0.033 +-5%	1	
	OR ECQV05333JZ	POLYESTER	50V	0.033 +-5%		
	OR ECQV1H333JZ	POLYESTER	50V	0.033 +-5%		
C4081	ECQB1H472JZ	POLYESTER	50V	0.0047 +-5%	1	
	OR ECQM1H472JV	POLYESTER	50V	0.0047 +-5%		
C4082	ECEA1EKL4R7	ELECTROLYTIC	25V	4.7	1	
C4083	ECEA1CKN100	ELECTROLYTIC	16V	10	1	
C4084	ECQV05473JZ	POLYESTER	50V	0.047 +-5%	1	
	OR ECQV1H473JZ	POLYESTER	50V	0.047 +-5%		
C4085	ECQB1H183JZ	POLYESTER	50V	0.018 +-5%	1	
	OR ECQV05183JZ	POLYESTER	50V	0.018 +-5%		
	OR ECQV1H183JZ	POLYESTER	50V	0.018 +-5%		
C4086	ECEA1HK010	ELECTROLYTIC	50V	1	1	
C4087	ECSF1CD224KD	TANTALUM	16V	0.22	1	
C4088	ECSF1CD684KD	TANTALUM	16V	0.68	1	
C4089	ECKW1H103ZF5	CERAMIC	50V	0.01	1	

Ref. No.	Part No.	Part Name & Description			Pcs/Set	Remarks
				+80%-20%		
C4101	ECEA1CK101	ELECTROLYTIC	16V	100	1	
C4102	ECEA1CS470	ELECTROLYTIC	16V	47	1	
C4103	ECEA1HSR47	ELECTROLYTIC	50V	0.47	1	
C4104,4105	ECKW1H102KB5	CERAMIC	50V	0.001	2	
C4106	ECEA1CS220	ELECTROLYTIC	16V	22	1	
C4107	VCYW1E103KX	CERAMIC	25V	0.01	1	
C4108	VCYW1E333KX	CERAMIC	50V	0.033	1	
C4109	ECQP1332JZ	POLYESTER	100V	0.0033 +-5%	1	
C4110,4111	ECRHC060G11	TRIMMER		60P	2	
	OR ECV1ZW60X64	TRIMMER		60P		
	OR VCVSAW60X1R	TRIMMER		60P		
C4112	ECEA1CS100	ELECTROLYTIC	16V	10	1	
C4113	ECKW1H103ZF5	CERAMIC	50V	0.01	1	
				+80%-20%		
C4114	ECEA1CS100	ELECTROLYTIC	16V	10	1	
C4115	ECKW1H103ZF5	CERAMIC	50V	0.01	1	
				+80%-20%		
C4116	ECEA1CS100	ELECTROLYTIC	16V	10	1	
C4117	ECKW1H103ZF5	CERAMIC	50V	0.01	1	
				+80%-20%		
C4118	ECCW1H820J5	CERAMIC	50V	82P +-5%	1	
C4119	ECEA1ES4R7	ELECTROLYTIC	25V	4.7	1	
C4120,4121	ECEA1CS100	ELECTROLYTIC	16V	10	2	
C4122	ECEA1ES4R7	ELECTROLYTIC	25V	4.7	1	
	OR ECEA1EU4R7	ELECTROLYTIC	25V	4.7		
C4123	ECEA1HS2R2	ELECTROLYTIC	50V	2.2	1	
C4124	VCYW1E333KX	CERAMIC	50V	0.033	1	
		FILTERS				
FL4001,4002	VLFS0002				2	
		COILS				
L4001	VLQS78F222K			2.2M	1	
L4002	VLQS67F222K			2.2M	1	
L4003	VLQS78F222K			2.2M	1	
L4004	VLQS67F222K			2.2M	1	
L4005	VLQS66F471K			470	1	
L6006	VLQS05R471K			470	1	
	OR VLQS66R471K			470		
		PIN HEADER				
P4001	VJPS0104			8P	1	
P4005	VJPS0098			2P	1	
		TRANSFORMER				
T4001	ELM7Q020E				1	
		MISCELLANEOUS				
	VJFS0009	SPEED CLAMPER			1	
	VMTS0035	CUSHION			6	
	VSCS0439	SHIELD CASE			1	
	VSCS0440	SHIELD CASE			1	
	VSCS0441	SHIELD CASE			1	
		OPERATION C.B.A				

Ref. No.	Part No.	Part Name & Description	Pcs / Set	Remarks
		DIODES		
D6301,6302	MA165		2	
D6304-6308	MA165		5	
		RESISTOR		
R6301	ERDS2TJ392	3.9K	1	
		SWITCHES		
SW6301-6310	EVQ-QJ104K	PUSH	10	
		MISCELLANEOUS		
	VSCS0478	SHIELD CASE	1	
		CHANNEL SELECT C.B.A		
		INTEGRATED CIRCUITS		
IC7301	UPC1363C		1	
	OR UPC1363CA			
IC7302	AN5070		1	
		TRANSISTORS		
Q7301	2SB642(Q,R,S)		1	
Q7302-7304	2SD637(Q,R,S)		3	
Q7306,7307	2SD637(Q,R,S)		2	
Q7311	2SD637(R,S)		1	
Q7312	2SD637(Q,R,S)		1	
Q7313	2SB642(Q,R,S)		1	
Q7314	2SD637(Q,R,S)		1	
		DIODES		
D7301-7314	MA166C		14	
D7315-7329	MA166		15	
D7331,7332	MA165		2	
D7333	MA166C		1	
D7335	MA166		1	
		RESISTORS		
R7301	ERDS2TJ563	56K	1	
R7304	ERDS2TJ273	27K	1	
R7305	ERDS2TJ563	56K	1	
R7306	ERDS2TJ683	68K	1	
R7307	ERDS2TJ103	10K	1	
R7310,7311	ERDS2TJ562	5.6K	2	
R7312,7313	ERDS2TJ472	4.7K	2	
R7314	ERDS2TJ562	5.6K	1	
R7315	ERDS2TJ333	33K	1	
R7316	ERDS2TJ472	4.7K	1	
R7317	ERDS2TJ104	100K	1	
R7318	ERDS2TJ224	220K	1	
R7319	ERDS2TJ561	560	1	
R7320	ERDS2TJ103	10K	1	
R7321	ERDS2TJ473	47K	1	
R7322	ERDS2TJ223	22K	1	
R7329,7330	ERDS2TJ104	100K	2	

Ref. No.	Part No.	Part Name & Description	Pcs / Set	Remarks
R7331	ERDS2TJ153	15K	1	
R7332,7333	ERDS2TJ563	56K	2	
R7334	ERDS2TJ474	470K	1	
R7335	ERDS2TJ154	150K	1	
R7337	ERDS2TJ223	22K	1	
R7338	ERDS2TJ103	10K	1	
R7339	ERDS2TJ472	4.7K	1	
R7340-7342	ERDS2TJ104	100K	3	
R7343	ERDS2TJ105	1M	1	
R7348	ERDS2TJ563	56K	1	
R7349	ERDS2TJ153	15K	1	
R7350,7351	ERDS2TJ223	22K	2	
R7352	ERDS2TJ3R3	3.3	1	
VR7301	EWELJ4A00B24	VARIABLE 20K	1	
		CAPACITORS		
C7301	ECEB1CK100	ELECTROLYTIC 16V 10	1	
C7302	ECQM1H223KV	POLYESTER 50V 0.022	1	
C7303	VCYST16103NY	CERAMIC 16V 0.01 +-30%	1	
C7306,7307	VCYST25332NX	CERAMIC 25V 0.0033 +-30%	2	
C7308	ECEA1HN4R7S	ELECTROLYTIC 50V 4.7	1	
C7309	ECCW1H101JC5	CERAMIC 50V 100P +-5%	1	
C7310	ECEA1HK010	ELECTROLYTIC 50V 1	1	
C7311	ECQM1H103KV	POLYESTER 50V 0.01	1	
C7312	ECEA1HK010	ELECTROLYTIC 50V 1	1	
C7315	ECQM1H103KV	POLYESTER 50V 0.01	1	
C7316	ECKW1H103ZF5	CERAMIC 50V 0.01 +80%-20%	1	
C7317	ECQM1H103KV	POLYESTER 50V 0.01	1	
		PIN HEADERS		
P7301	VJPS0015	10P	1	
P7302	VJPS0012	4P	1	
		SWITCH		
SW7301	VSSS0025	SELECT	1	
		PROGRAMMABLE TIMER C.B.A		(A)
		INTEGRATED CIRCUITS		
IC7501	UPD7538C-021		1	
		TRANSISTORS		
Q7501	2SB641(Q,R,S)		1	
Q7502	2SD636(Q,R,S)		1	
		DIODES		
DX7202	VCRS0038	COMPLEX COMPONENT	1	
DX7501	VCRS0037	COMPLEX COMPONENT	1	
DX7503-7505	VCRS0038	COMPLEX COMPONENT	3	
D7215-7228	LN31GCPHL-U	LED	14	
D7501	MA165		1	
	OR 1SS119			
D7502	MA1091	ZENER	1	
	OR MA4091	ZENER		
	OR RD9.1EB	ZENER		
D7503-7509	MA166		7	

Ref. No.	Part No.	Part Name & Description	Pcs/Set	Remarks
D7512-7515	MA166		4	
		RESISTORS		
R7501,7502	ERDS2TJ473	47K	2	
R7503,7504	ERDS2TJ223	22K	2	
R7505	ERDS2TJ222	2.2K	1	
R7508-7510	ERDS2TJ223	22K	3	
R7511	ERDS2TJ473	47K	1	
R7512,7513	ERDS2TJ223	22K	2	
R7517-7523	ERDS2TJ221	220	7	
R7524	ERDS2TJ472	4.7K	1	
R7525,7526	ERDS2TJ331	330	2	
R7527,7528	ERDS2TJ472	4.7K	2	
		CAPACITORS		
C7501	ECEA0JS221	ELECTROLYTIC 6.3V 220	1	
C7502	ECKW1H223ZF5	CERAMIC 50V 0.022 +80%-20%	1	
C7503	ECEB1HK010	ELECTROLYTIC 50V 1	1	
C7504	ECEA1CK100	ELECTROLYTIC 16V 10	1	
	OR ECEA1CS100	ELECTROLYTIC 16V 10		
C7505	VCYSARC103NY	CERAMIC 16V 0.01 +-30%	1	
C7506,7507	VCYSARH101KB	CERAMIC 50V 100P	2	
C7508	VCYSARH102KB	CERAMIC 50V 0.001	1	
C7509	VCYSARH471KB	CERAMIC 50V 470P	1	
C7510	VCYSARC103NY	CERAMIC 16V 0.01 +-30%	1	
C7511	ECKW1H103ZF5	CERAMIC 50V 0.01 +80%-20%	1	
C7514	VCYSARC103NY	CERAMIC 16V 0.01 +-30%	1	
C7520	VCYSARC103NY	CERAMIC 16V 0.01 +-30%	1	
C7521	ECKF1H103ZV	CERAMIC 50V 0.01 +80%-20%	1	
		COIL		
L7501	VLQS05R4R7K	4.7	1	
		CRYSTALS OSCILLATOR		
X7501	VSXS0007		1	
	OR VSXS0008			
		SWITCHES		
SW7201-7214	EVQQSR05K	PUSH	14	
SW7502-7506	EVQ-QJ104K	PUSH	5	
SW7901-7903	EVQ-QJ104K	PUSH	3	
		MISCELLANEOUS		
	VGMS0223	DISPLAY TUBE HOLDER	1	
	VMDS0185	LED HOLDER	2	
	VSCS0304	GROUNDING PLATE	1	
DP7501	VSZS0023	DISPLAY TUBE	1	
		PROGRAMMABLE TIMER C.B.A		(B)

Ref. No.	Part No.	Part Name & Description	Pcs/Set	Remarks
		INTEGRATED CIRCUITS		
IC7501	UPD7538C-021		1	
		TRANSISTORS		
Q7502	2SD636(Q,R,S)		1	
		DIODES		
DX7201	VCRS0037	COMPLEX COMPONENT	1	
DX7202	VCRS0038	COMPLEX COMPONENT	1	
DX7503-7505	VCRS0038	COMPLEX COMPONENT	3	
D7215-7228	LN31GCPHL-U	LED	14	
D7502	MA1091	ZENER	1	
	OR MA4091	ZENER		
	OR RD9.1EB	ZENER		
D7503-7517	MA166		15	
D7542,7543	MA166		2	
D7545	MA1200	ZENER	1	
	OR MA4200	ZENER		
	OR RD20EB	ZENER		
D7901	LN31GCPHLM	LED	1	
		RESISTORS		
R7228	ERDS2TJ102	1K	1	
R7501,7502	ERDS2TJ103	10K	2	
R7505	ERDS2TJ222	2.2K	1	
R7508	ERDS2TJ682	6.8K	1	
R7509,7510	ERDS2TJ223	22K	2	
R7511	ERDS2TJ473	47K	1	
R7512-7515	ERDS2TJ223	22K	4	
R7516	ERDS2TJ224	220K	1	
R7518	ERDS2TJ221	220	1	
R7521,7522	ERDS2TJ102	1K	2	
R7524	ERDS2TJ472	4.7K	1	
R7525,7526	ERDS2TJ331	330	2	
R7527	ERDS2TJ472	4.7K	1	
R7905	ERDS2TJ271	270	1	
		CAPACITORS		
C7501	ECEA0JS221	ELECTROLYTIC 6.3V 220	1	
C7502	ECQV05224JZ	POLYESTER 50V 0.22 +-5%	1	
	OR ECQV1H224JZ	POLYESTER 50V 0.22 +-5%		
C7503	ECEB1HK010	ELECTROLYTIC 50V 1	1	
C7505	VCYSARC103NY	CERAMIC 16V 0.01 +-30%	1	
C7506,7507	VCYSARH101KB	CERAMIC 50V 100P	2	
C7508	VCYSARH102KB	CERAMIC 50V 0.001	1	
C7510	VCYSARC103NY	CERAMIC 16V 0.01 +-30%	1	
C7511	ECKW1H103ZF5	CERAMIC 50V 0.01 +80%-20%	1	
C7514	VCYSARC103NY	CERAMIC 16V 0.01 +-30%	1	
C7520	VCYSARC103NY	CERAMIC 16V 0.01 +-30%	1	
		COIL		
L7501	VLQS05R4R7K	4.7	1	
		CRYSTALS OSCILLATOR		
X7501	VSXS0007		1	
	OR VSXS0008			

Ref. No.	Part No.	Part Name & Description	Pcs Set	Remarks
		SWITCHES		
SW7201-7214	EVQQSR05K	PUSH	14	
SW7502-7507	EVQ-QJ104K	PUSH	6	
SW7901-7903	EVQ-QJ104K	PUSH	3	
SW7904	VES0198	SLIDE	1	
	OR VSSS0005	SLIDE		
SW7905	VSSS0032	SLIDE	1	
		MISCELLANEOUS		
	VGTS0163	SELECT SWITCH KNOB	1	
	VMDS0185	LED HOLDER	2	
	VMDS0223	DISPLAY TUBE HOLDER	1	
	VMXS0036	LED SPACER	1	
	VSCS0304	GROUNDING PLATE	1	
DP7501	VSZS0023	DISPLAY TUBE	1	
		CAPSTAN MOTOR DRIVE C.B.A		
		INTEGRATED CIRCUITS		
IC2601	AN3821K		1	
	OR AN3822K			
		RESISTORS		
R2601	⚠ ERX12ANJR68	METAL OXIDE 1/2W 0.68	1	
	⚠ OR ERX12SJR68	METAL OXIDE 1/2W 0.068 +-5%		
R2602	ERDS2TJ102	1K	1	
R2603	ERDS2TJ392	3.9K	1	
R2605	ERDS2TJ181	180	1	
R2606-2608	ERDS2TJ224	220K	3	
		CAPACITORS		
C2601	ECEA1CK101	ELECTROLYTIC 16V 100	1	
C2602	ECQM1H473KV	POLYESTER 50V 0.047	1	
	OR ECQM1H473KZ	POLYESTER 50V 0.047		
C2603	ECEA1HK010	ELECTROLYTIC 50V 1	1	
C2604-2606	ECEA1EKN2R2	ELECTROLYTIC 25V 2.2	3	
C2607-2609	ECKF1H472ZF	CERAMIC 50V 0.0047 +80%-20%	3	
		PIN HEADER		
P2601	VJPS0116	8P	1	
		MISCELLANEOUS		
	T18S	FASTENER	1	
		HEAD AMP UNIT		
		INTEGRATED CIRCUITS		
IC3501	AN3220K		1	
IC3502	AN3310K		1	

Ref. No.	Part No.	Part Name & Description	Pcs Set	Remarks
		TRANSISTORS		
Q3502	2SC2206		1	
Q3503,3504	2SC2021M(Q,R,S)		2	
	OR			
	2SD636(Q,R,S)			
		RESISTORS		
R3501	ERDS2TJ681	680	1	
R3502	ERDS2TJ122	1.2K	1	
R3503	ERDS2TJ151	150	1	
R3504	ERDS2TJ222	2.2K	1	
R3505-3508	ERDS2TJ100	10	4	
R3509-3512	ERDS2TJ102	1K	4	
R3513	ERDS2TJ681	680	1	
R3514	ERDS2TJ821	820	1	
R3515	ERDS2TJ561	560	1	
R3516	ERDS2TJ821	820	1	
R3517	ERDS2TJ152	1.5K	1	
R3518	ERDS2TJ222	2.2K	1	
R3519,3520	ERDS2TJ102	1K	2	
R3521	ERDS2TJ271	270	1	
R3522	ERDS2TJ122	1.2K	1	
R3523	ERDS2TJ102	1K	1	
R3524	ERDS2TJ223	22K	1	
R3525	ERDS2TJ683	68K	1	
R3526	ERDS2TJ392	3.9K	1	
R3527	ERDS2TJ223	22K	1	
		CAPACITORS		
C3501	ECKZ1H103ZF5	CERAMIC 50V 0.01 +80%-20%	1	
	OR ECKZ1H103ZV	CERAMIC 50V 0.01 +80%-20%		
C3502	ECCZ1H180JC	CERAMIC 50V 18P +-5%	1	
	OR			
	ECCZ1H180JC6	CERAMIC 50V 18P +-5%		
C3504-3507	ECKZ1H103ZF5	CERAMIC 50V 0.01 +80%-20%	4	
	OR ECKZ1H103ZV	CERAMIC 50V 0.01 +80%-20%		
C3508,3509	ECEA1CK470	ELECTROLYTIC 16V 47	2	
C3510	ECEA1HK010	ELECTROLYTIC 50V 1	1	
C3511	ECKZ1H103ZF5	CERAMIC 50V 0.01 +80%-20%	1	
	OR ECKZ1H103ZV	CERAMIC 50V 0.01 +80%-20%		
C3512	ECCZ1H270JC	CERAMIC 50V 27P +-5%	1	
	OR			
	ECCZ1H270JC6	CERAMIC 50V 27P +-5%		
C3513	ECKZ1H103ZF5	CERAMIC 50V 0.01 +80%-20%	1	
	OR ECKZ1H103ZV	CERAMIC 50V 0.01 +80%-20%		
C3514	ECCZ1H470JC	CERAMIC 50V 47P +-5%	1	
	OR			
	ECCZ1H470JC6	CERAMIC 50V 47P +-5%		
C3515,3516	ECEA1HK010	ELECTROLYTIC 50V 1	2	
C3517	ECKZ1H103ZF5	CERAMIC 50V 0.01 +80%-20%	1	
	OR ECKZ1H103ZV	CERAMIC 50V 0.01 +80%-20%		
C3518	ECCZ1H150JC	CERAMIC 50V 15P +-5%	1	
	OR			
	ECCZ1H150JC6	CERAMIC 50V 15P +-5%		
C3519	ECKZ1H103ZF5	CERAMIC 50V 0.01 +80%-20%	1	

Ref. No.	Part No.	Part Name & Description	Pcs/Set	Remarks
	OR ECKZ1H103ZV	CERAMIC 50V 0.01 +80%-20%		
C3520	ECCZ1H330JC	CERAMIC 50V 33P +-5%	1	
	OR			
	ECCZ1H330JC6	CERAMIC 50V 33P +-5%		
C3521	ECEA1HK010	ELECTROLYTIC 50V 1	1	
C3522,3523	ECKZ1H103ZF5	CERAMIC 50V 0.01 +80%-20%	2	
	OR ECKZ1H103ZV	CERAMIC 50V 0.01 +80%-20%		
C3524	ECEA1CK470	ELECTROLYTIC 16V 47	1	
C3525	ECKZ1H103ZF5	CERAMIC 50V 0.01 +80%-20%	1	
	OR ECKZ1H103ZV	CERAMIC 50V 0.01 +80%-20%		
C3526	ECCZ1H220JC	CERAMIC 50V 22P +-5%	1	
	OR			
	ECCZ1H220JC6	CERAMIC 50V 22P +-5%		
C3527	ECCZ1H470JC	CERAMIC 50V 47P +-5%	1	
	OR			
	ECCZ1H470JC6	CERAMIC 50V 47P +-5%		
C3528	ECEA1HK010	ELECTROLYTIC 50V 1	1	
C3529	ECCZ1H820JC	CERAMIC 50V 82P +-5%	1	
	OR			
	ECCZ1H820JC6	CERAMIC 50V 82P +-5%		
C3530	ECKW1H102KB5	CERAMIC 50V 0.001	1	
C3532,3533	ECKZ1H103ZF5	CERAMIC 50V 0.01 +80%-20%	2	
	OR ECKZ1H103ZV	CERAMIC 50V 0.01 +80%-20%		
C3534	ECKZ1H331KB	CERAMIC 50V 330P	1	
	OR			
	ECKZ1H331KB6	CERAMIC 50V 330P		
		COILS		
L3501	VLQEL05R330K	33	1	
L3502	VLQEL05R101K	100	1	
L3503-3506	BF30-3.5X6X1	2	4	
L3507,3508	VLQEL05R101K	100	2	
L3509	VLQEL05R470K	47	1	
L3510	VLQEL05R180K	18	1	
L3511	VLQEL05R330K	33	1	
L3512	VLQEL05R181K	180	1	
		MISCELLANEOUS		
	VJHS0045	PACK PIN	3	
	VSCS0410	SHIELD CASE	1	
	VSCS0428	SHIELD CASE	1	
	VSCS0429	SHIELD CASE	1	
	VSCS0430	SHIELD CASE	1	
		LUMINANCE C.B.A		
		INTEGRATED CIRCUITS		
IC3101	AN3210K		1	
IC3102	AN3320K		1	
		DIODES		
D3101,3102	MA165		2	
	OR 1SS119			

Ref. No.	Part No.	Part Name & Description	Pcs/Set	Remarks
D3103	EQA02-06	ZENER	1	
	OR RD6.2EB	ZENER		
	OR RD6.8EB	ZENER		
		RESISTORS		
R3101-3103	EVNE4AA00B54	VARIABLE 50K	3	
R3104	EVNE4AA00B14	VARIABLE 10K	1	
R3105	ERDS2TJ103	10K	1	
R3106	ERDS2TJ182	1.8K	1	
R3107	ERDS2TJ563	56K	1	
R3110	ERDS2TJ332	3.3K	1	
R3111	ERDS2TJ822	8.2K	1	
R3112	ERDS2TJ821	820	1	
R3113	ERDS2TJ102	1K	1	
R3114	EVNE4AA00B54	VARIABLE 50K	1	
R3115	ERDS2TJ102	1K	1	
R3116	ERDS2TJ272	2.7K	1	
R3117	ERDS2TJ103	10K	1	
R3118,3119	ERDS2TJ391	390	2	
R3120,3121	ERDS2TJ122	1.2K	2	
R3122	ERDS2TJ562	5.6K	1	
R3123	EVNE4AA00B24	VARIABLE 20K	1	
R3125	ERDS2TJ122	1.2K	1	
R3126	ERDS2TJ152	1.5K	1	
R3127	ERDS2TJ182	1.8K	1	
R3128	ERDS2TJ471	470	1	
R3129	ERDS2TJ151	150	1	
R3130	ERDS2TJ222	2.2K	1	
R3131	ERDS2TJ181	180	1	
R3132	ERDS2TJ103	10K	1	
R3133,3134	ERDS2TJ152	1.5K	2	
R3135	ERDS2TJ122	1.2K	1	
R3140,3141	ERDS2TJ824	820K	2	
R3143	ERDS2TJ473	47K	1	
		CAPACITORS		
C3101	VCYSARC103NY	CERAMIC 16V 0.01 +-30%	1	
C3102	ECCW1H390JC5	CERAMIC 50V 39P +-5%	1	
C3103	VCYSARC103NY	CERAMIC 16V 0.01 +-30%	1	
C3105	VCYSARH101KB	CERAMIC 50V 100P	1	
C3106	ECEA1HSR47	ELECTROLYTIC 50V 0.47	1	
C3107	VCYSARC103NY	CERAMIC 16V 0.01 +-30%	1	
C3108	ECEA0JS221	ELECTROLYTIC 6.3V 220	1	
	OR ECEA0JU221	ELECTROLYTIC 6.3V 220		
C3109	VCYSARH471KB	CERAMIC 50V 470P	1	
C3110	VCYSARH391KB	CERAMIC 50V 390P	1	
C3111	VCYSARH561KB	CERAMIC 50V 560P	1	
C3112	ECEA1HS010	ELECTROLYTIC 50V 1	1	
	OR ECEA1HU010	ELECTROLYTIC 50V 1		
C3113	ECCW1H680JC5	CERAMIC 50V 68P +-5%	1	
C3114	VCYSARH331KB	CERAMIC 50V 330P	1	
C3115-3122	VCYSARC103NY	CERAMIC 16V 0.01 +-30%	8	
C3123,3124	ECCW1H390JC5	CERAMIC 50V 39P +-5%	2	
C3125	ECEA0JS221	ELECTROLYTIC 6.3V 220	1	
	OR ECEA0JU221	ELECTROLYTIC 6.3V 220		
C3126-3128	VCYSARC103NY	CERAMIC 16V 0.01 +-30%	3	
C3129	ECCW1H390JC5	CERAMIC 50V 39P +-5%	1	
C3130	ECEA1HS010	ELECTROLYTIC 50V 1	1	
	OR ECEA1HU010	ELECTROLYTIC 50V 1		
C3131	ECCW1H390JC5	CERAMIC 50V 39P +-5%	1	
C3132	ECEA1ES3R3	ELECTROLYTIC 25V 3.3	1	
	OR ECEA1EU3R3	ELECTROLYTIC 25V 3.3		
C3133,3134	VCYSARC103NY	CERAMIC 16V 0.01 +-30%	2	
C3135	ECEA1HS010	ELECTROLYTIC 50V 1	1	

Ref. No.	Part No.	Part Name & Description	Pcs/Set	Remarks
	OR ECEA1HU010	ELECTROLYTIC 50V 1		
C3136	VCYSARH681KB	CERAMIC 50V 680P	1	
C3137	ECCW1H151JC5	CERAMIC 50V 150P +-5%	1	
C3138	ECCW1H331J5	CERAMIC 50V 330P +-5%	1	
	OR			
	VCKW1H331JSA	CERAMIC 50V 330P +-5%		
C3139	VCYSARC103NY	CERAMIC 16V 0.01 +-30%	1	
C3140	ECCW1H561J5	CERAMIC 50V 560P +-5%	1	
	OR			
	VCKW1H561JSA	CERAMIC 50V 560P +-5%		
C3141	ECCW1H820JC5	CERAMIC 50V 82P +-5%	1	
C3142	ECEA1ES3R3	ELECTROLYTIC 25V 3.3	1	
	OR ECEA1EU3R3	ELECTROLYTIC 25V 3.3		
C3143	ECEA1ES4R7	ELECTROLYTIC 25V 4.7	1	
	OR ECEA1EU4R7	ELECTROLYTIC 25V 4.7		
C3144	ECEA1CS220	ELECTROLYTIC 16V 22	1	
	OR ECEA1CU220	ELECTROLYTIC 16V 22		
C3145	ECEA1ES3R3	ELECTROLYTIC 25V 3.3	1	
	OR ECEA1EU3R3	ELECTROLYTIC 25V 3.3		
C3147	ECEA1HS2R2	ELECTROLYTIC 50V 2.2	1	
		DELAY LINE		
DL3101	EFDEN645A12P		1	
	OR VLDS0003			
		FILTER		
FL3101	ELB4M006		1	
	OR VLFS0011			
		COILS		
L3101,3102	VLQS05R101K	100	2	
L3103	VLQS05R181K	180	1	
L3104	VLQS05R270K	27	1	
L3105	VLQS05R101K	100	1	
L3106,3107	VLQS05R100K	10	2	
		MISCELLANEOUS		
	VJHS0046	PACK LEAD PIN	1	
	VMXS0366	SPACER	1	
	VMZS0081	SPACER	1	
	VSCS0494	ANGLE	1	
		CHROMINANCE C.B.A		
		INTEGRATED CIRCUITS		
IC8101	AN6366NK		1	
IC8102	MN6163A		1	
		TRANSISTORS		
Q8101-8104	2SC2021M(Q,R,S)		4	
	OR			
	2SD636(Q,R,S)			

Ref. No.	Part No.	Part Name & Description	Pcs/Set	Remarks
		DIODES		
D8101,8102	MA165		2	
	OR 1SS119			
		RESISTORS		
R8101	ERDS2TJ102	1K	1	
R8102	ERDS2TJ121	120	1	
R8103	ERDS2TJ152	1.5K	1	
R8104	ERDS2TJ122	1.2K	1	
R8105	ERDS2TJ222	2.2K	1	
R8106	ERDS2TJ272	2.7K	1	
R8107,8108	ERDS2TJ682	6.8K	2	
R8109	EVNE4AA00B54	VARIABLE 50K	1	
R8110	ERDS2TJ183	18K	1	
R8111	ERDS2TJ271	270	1	
R8112	ERDS2TJ822	8.2K	1	
R8113	EVNE4AA00B53	VARIABLE 5K	1	
R8114	ERDS2TJ122	1.2K	1	
R8115	ERDS2TJ822	8.2K	1	
R8116	ERDS2TJ183	18K	1	
R8117	ERDS2TJ471	470	1	
R8119	ERDS2TJ223	22K	1	
R8120	ERDS2TJ102	1K	1	
R8122	ERDS2TJ470	47	1	
R8123,8124	ERDS2TJ122	1.2K	2	
R8125	ERDS2TJ102	1K	1	
R8126	ERDS2TJ271	270	1	
R8127	ERDS2TJ102	1K	1	
R8129	ERDS2TJ822	8.2K	1	
R8130	ERDS2TJ183	18K	1	
R8131	ERDS2TJ562	5.6K	1	
R8132	ERDS2TJ561	560	1	
R8133	ERDS2TJ273	27K	1	
R8134	ERDS2TJ153	15K	1	
R8135	ERDS2TJ561	560	1	
R8136	ERDS2TJ472	4.7K	1	
R8137	ERDS2TJ821	820	1	
R8138	ERDS2TJ472	4.7K	1	
R8139	ERDS2TJ122	1.2K	1	
		CAPACITORS		
C8101,8102	VCYSARC103NY	CERAMIC 16V 0.01 +-30%	2	
C8103	VCYW1E183KX	CERAMIC 25V 0.018	1	
C8104	VCYSARH680J	CERAMIC 50V 68P +-5%	1	
C8105,8106	VCYSARH121KB	CERAMIC 50V 120P	2	
C8107	VCYSARC103NY	CERAMIC 16V 0.01 +-30%	1	
C8108	ECEA1HK010	ELECTROLYTIC 50V 1	1	
C8109	ECEA0JS470	ELECTROLYTIC 6.3V 47	1	
C8110	VCYSARH5R6KC	CERAMIC 50V 5.6P	1	
C8111	MCV03R200ER	TRIMMER 20P	1	
C8112	VCYSARH102KB	CERAMIC 50V 0.001	1	
C8113	ECEA0JS221	ELECTROLYTIC 6.3V 220	1	
C8114	VCYSARC103NY	CERAMIC 16V 0.01 +-30%	1	
C8115	VCYSARH102KB	CERAMIC 50V 0.001	1	
C8116	VCYSARC103NY	CERAMIC 16V 0.01 +-30%	1	
C8117	VCYW1C104MX	CERAMIC 16V 0.1 +-20%	1	
C8118,8119	VCYSARC103NY	CERAMIC 16V 0.01 +-30%	2	
C8120	VCYSARC222NX	CERAMIC 16V 0.0022 +-30%	1	
C8121	VCYSARC103NY	CERAMIC 16V 0.01 +-30%	1	
C8122	VCYW1C104MX	CERAMIC 16V 0.1 +-20%	1	
C8123-8130	VCYSARC103NY	CERAMIC 16V 0.01 +-30%	8	
C8131	VCYSARH680J	CERAMIC 50V 68P +-5%	1	
C8132	VCYSARH271KB	CERAMIC 50V 270P	1	
C8133	VCYSARH680J	CERAMIC 50V 68P +-5%	1	

Ref. No.	Part No.	Part Name & Description	Pcs/Set	Remarks
C8134	VCYSARC472NX	CERAMIC 16V 0.0047 +-30%	1	
C8135	VCYSARH680J	CERAMIC 50V 68P +-5%	1	
C8136	VCYSARH220J	CERAMIC 50V 22P +-5%	1	
C8137	ECEA1ES3R3	ELECTROLYTIC 25V 3.3	1	
C8138	ECEA1ES4R7	ELECTROLYTIC 25V 4.7	1	
C8139	VCYW1C104MX	CERAMIC 16V 0.1 +-20%	1	
C8140	VCYSARH150JC	CERAMIC 50V 15P +-5%	1	
C8142	VCYW1C104MX	CERAMIC 16V 0.1 +-20%	1	
		DELAY LINE		
DL8101	EFDVN645B15G		1	
		FILTERS		
FL8101	ELB5G033		1	
	OR VLFS0008			
		COILS		
L8101	VLQS05R471K	470	1	
L8102	VLQS05R221K	220	1	
L8103	VLQS05R331K	330	1	
L8104,8105	VLQS05R101K	100	2	
L8106,8107	VLQS05R181K	180	2	
L8108	VLQS66R102K	1M	1	
L8109	VLQS05R470K	47	1	
		CRYSTALS OSCILLATOR		
X8101	VSXS0003		1	
	OR VSX0060			
		MISCELLANEOUS		
	VJHS0046	PACK LEAD PIN	1	
		TV DEMODULATOR UNIT		
		INTEGRATED CIRCUITS		
IC701	AN5135K		1	
		TRANSISTORS		
Q701	2SC2188		1	
Q702	2SD637(Q,R)		1	
		DIODES		
D701	MA27T-B		1	
		RESISTORS		
R702,703	ERDS2TJ562	5.6K	2	
R704	ERDS2TJ271	270	1	
R705	ERDS2TJ221	220	1	

Ref. No.	Part No.	Part Name & Description	Pcs/Set	Remarks
R706,707	ERDS2TJ821	820	2	
R708	ERDS2TJ561	560	1	
R709	ERDS2TJ470	47	1	
R710	ERDS2TJ122	1.2K	1	
R711	ERDS2TJ474	470K	1	
R712	ERDS2TJ183	18K	1	
R713	ERDS2TJ221	220	1	
R714	ERDS2TJ821	820	1	
R715	AVNE4AA0B682	VARIABLE 6.8K	1	
	OR			
	EVNE4AA00B53	VARIABLE 5K		
R716	ERDS2TJ471	470	1	
R718	AVNE4AA0B103	VARIABLE 10K	1	
	OR			
	EVNE4AA00B14	VARIABLE 10K		
R719	ERDS2TJ272	2.7K	1	
R720	ERDS2TJ680	68	1	
R721	ERDS1TJ680	1/2W 68	1	
R722	ERDS1TJ101	1/2W 100	1	
R723	ERDS2TJ101	100	1	
R724	ERDS2TJ562	5.6K	1	
R726	ERDS2TJ222	2.2K	1	
R727	ERDS2TJ102	1K	1	
R729	ERDS2TJ681	680	1	
R730	ERDS2TJ104	100K	1	
R732	ERDS2TJ222	2.2K	1	
R734	ERDS2TJ102	1K	1	
R735	ERDS2TJ152	1.5K	1	
		CAPACITORS		
C701-704	VCYSARC103NY	CERAMIC 16V 0.01 +-30%	4	
C705	ECEA1CK330	ELECTROLYTIC 16V 33	1	
C706,707	VCYSARC103NY	CERAMIC 16V 0.01 +-30%	2	
C708	ECQV05474JB	POLYESTER 50V 0.47 +-5%	1	
	OR ECQV05474JV	POLYESTER 50V 0.47 +-5%		
	OR ECQV1H474JZ	POLYESTER 50V 0.47 +-5%		
C709	VCYSARC103NY	CERAMIC 16V 0.01 +-30%	1	
C710	ECEA1HK010	ELECTROLYTIC 50V 1	1	
C713	VCYSARC103NY	CERAMIC 16V 0.01 +-30%	1	
C715	ECCW1H180JC5	CERAMIC 50V 18P +-5%	1	
C716	ECKW1H101KB5	CERAMIC 50V 100P	1	
C717	ECCW1H820JR5	CERAMIC 50V 82P +-5%	1	
C718	ECCW1H120JC5	CERAMIC 50V 12P +-5%	1	
C719	ECCW1H220JC5	CERAMIC 50V 22P +-5%	1	
C720,721	ECQV05473JV	POLYESTER 50V 0.047 +-5%	2	
	OR ECQV05473JZ	POLYESTER 50V 0.047 +-5%		
	OR ECQV1H473JZ	POLYESTER 50V 0.047 +-5%		
C722	ECEA1HKR47	ELECTROLYTIC 50V 0.47	1	
C723	ECEA1CK470	ELECTROLYTIC 16V 47	1	
C726	ECCW1H040CC5	CERAMIC 50V 4P +-0.25P	1	
C727	ECQM1H223KV	POLYESTER 50V 0.022	1	
	OR ECQM1H223KZ	POLYESTER 50V 0.022		
C728	ECCW1H560JC5	CERAMIC 50V 56P +-5%	1	
C729	ECEA1EK4R7	ELECTROLYTIC 25V 4.7	1	
C731	ECCW1H270JC5	CERAMIC 50V 27P +-5%	1	
C733	ECEA1HK010	ELECTROLYTIC 50V 1	1	
C734	VCYSARC103NY	CERAMIC 16V 0.01 +-30%	1	
C736	ECCW1H560JC5	CERAMIC 50V 56P +-5%	1	
		FILTERS		
FL701	SFE4R5MB4	CERAMIC	1	
FL702	EFCS4R5MW3	CERAMIC	1	
	OR TFCS4R5MW3	CERAMIC		
FL703	VLFS0006		1	
FL704	VSXS0004		1	

Ref. No.	Part No.	Part Name & Description	Pcs / Set	Remarks
		COILS		
L702	ELQR82KB	0.82	1	
	OR TLQR82N205C	0.82		
L703	VLQS66R4R7K	4.7	1	
L705	ELQR47KB	0.47	1	
	OR TLQR47N205C	0.47		
L706	VLQS66R120K	12	1	
L707	VLQS66R680K	68	1	
L708	VLQS66R4R7K	4.7	1	
L709	VLQS66R470K	47	1	
L710	VLQS66R680K	68	1	
L712	VLQS66R220K	22	1	
		TRANSFORMER		
T701	EIV7EF002B		1	
T702	EIV7EF001B		1	
		MISCELLANEOUS		
	VJHS0045	PACK PIN	3	
	VSCS0389	SHIELD CASE	1	
	VSCS0390	SHIELD CASE	1	
		ELECTRICAL PARTS LOCATED ON CHASSIS		
	TBM76680	BARRIER	1	(B)
	TEL302-5X	CHECK TERMINAL	2	
	TJE98101	CHECK TERMINAL	12	
	TNV56751F2R	UHF/VHF TUNER UNIT	1	
	VEJS0020	VHF BLOK	1	
	VEKS1524	ANT CABLE	1	
	VEKS1525	RF CABLE	1	
⚠	VEKS1534	AC CORD UNIT	1	
	VEKS1756	LUG ASS'Y	1	(B)
	VEPS00269A	REEL SENSOR UNIT	1	
	VEQS0252	RF CONVERTER	1	
	VEQS0253	RF CONVERTER	1	
	VEQS0254	RF CONVERTER	1	
	VEQS0255	RF CONVERTER	1	
	VJBS00287	SWITCH P.C.B	1	
	VJBS00296	CONNECTION P.C.B	1	
	VJES0005	CHECK TERMINAL	8	
	VJES0007	CHECK TERMINAL	40	
	VJES0008	CHECK TERMINAL	2	
	VEKS1523	ANT TERMINAL UNIT	1	
	VJPS0115	PIN HEADER 7P	1	
	VLTS0002	BALLOON CORE	1	
	VMXS0333	REEL SENSOR SPACER	1	
	VQLS0768	FUSE CAUTION LABEL	1	
	VSCS0283	ANT COVER	1	
	VSCS0517	SHIELD CASE	1	(B)
	VSMS0007	SAFETY SWITCH	1	
	VSMS0009	CASSETTE IN SWITCH	1	
	VSMS0010	CASSETTE UP DOWN SWITCH	1	
	VXKS0342	SENSOR LED UNIT	1	
	XNG3	M3 NUT	1	
	XTV3+10B	TAPPING SCREW 3X10	2	
	XTV3+8B	TAPPING SCREW 3X8	1	
	XTV3+8FX	TAPPING SCREW 3X8	2	
	XYN3+F12FNS	SCREW WITH WASHER 3X12	1	
IC1551	ON2160	INTEGRATED CIRCUITS	1	
Q1551,1552	PN150NV	PHOTO TRANSISTOR	2	
R1551	ERDS2TJ100	RESISTOR 10	1	

Ref. No.	Part No.	Part Name & Description	Pcs / Set	Remarks
R1552	ERDS2TJ100	RESISTOR 10	1	(B)
		WIRED TRANSMITTER C.B.A		(A)
		RESISTORS		
R6601	ERDS2TJ362	3.6K	1	
R6602	ERDS2TJ752	7.5K	1	
R6603,6604	ERDS2TJ153	15K	2	
		SWITCH		
SW6601-6606	EVQ-QJR02K		6	
		IR WIRELESS TRANSMITTER C.B.A		(B)
		INTEGRATED CIRCUITS		
IC1	UPD6108C-003		1	
		TRANSISTORS		
Q1	2SD1458		1	
		DIODES		
D1	LN66NC		1	
		RESISTORS		
R1	ERDS2TJ102	1K	1	
R2	ERDS2TJ473	47K	1	
R3	ERDS2TJ1R0	1	1	
		CAPACITORS		
C1,2	ECKF1H471KB	CERAMIC 50V 470P	2	
C3	ECEA0JK101	ELECTROLYTIC 6.3V 100	1	
		CRYSTALS OSCILLATOR		
X1	CSB455PB6T		1	
	OR			
	EF0A455K05B1			
		IR WIRELESS RECEIVING DETECTOR C.B.A		(B)(VEQS0285) (VEQS0293)
		INTEGRATED CIRCUITS		
IC1	UPC1373H	(VEQS0285)	1	
	OR UPC1373HA			
IC1	LA7224	(VEQS0293)	1	

Ref. No.	Part No.	Part Name & Description	Pcs / Set	Remarks
		DIODES		
D1	PH302		1	
	OR PN313			
	OR TPS703	(VEQS0285)	1	
		RESISTORS		
R1	ERDS2TJ102	1K	1	
R2	ERDS2TJ560	(VEQS0285) 56	1	
R2	ERDS2TJ330	(VEQS0293) 33	1	
R3	ERDS2TJ224	(VEQS0285) 220K	1	
R4	ERDS2TJ182	(VEQS0293) 1.8K	1	
		CAPACITORS		
C1	ECEA1CK100	ELECTROLYTIC 16V 10	1	
C2	ECEA1EK4R7	ELECTROLYTIC 25V 4.7	1	
		(VEQS0285)		
C2	ECEA1HK2R2	ELECTROLYTIC 50V 2.2	1	
		(VEQS0293)		
C3	ECEA1CK100	ELECTROLYTIC 16V 10	1	
		(VEQS0285)		
C3	ECEA1EK4R7	ELECTROLYTIC 25V 4.7	1	
		(VEQS0293)		
C4	AMZV50K183	POLYESTER 50V 0.018	1	
		(VEQS0285)		
C4	ECQB1H182KH	POLYESTER 50V 0.018	1	
		(VEQS0293)		
C5	ECEA1CK470	ELECTROLYTIC 16V 47	1	
C6	APSV100J182	POLYESTER 100V 0.0018 +-5%	1	
		COILS		
T1	ELM7Q206A		1	